OCTOBER 22, 1938

THE LANCET

Offices: 7, ADAM STREET, ADELPHI, W.C.2.

Telegrams: LANCET, RAND, LONDON. Telephone: TEMPLE BAR 7228 and 7229.

No. XVII., OF VOL. II., 1938. LONDON, SATURDAY, OCTOBER 22, 1938. Pp. 120 Price 1s.
No. 6008. VOL. CCXXXV. Founded 1823. PUBLISHED WEEKLY. Registered as a Newspaper. Annual Subscription: Inland £2 2s. Abroad £2 10s.

THE FACIAL NEURALGIAS
By WILFRED HARRIS, M.D., F.R.C.P.

Pp. 120, with 15 Illustrations. 7s. 6d. net.

"Of the greatest value . . . outstanding contribution . . . leaves us deeply impressed." THE LANCET.

Oxford University Press

RECENTLY PUBLISHED. SECOND EDITION. 5s. net; postage 4d.
MORPHINE HABIT
AND ITS PAINLESS TREATMENT
By G. LAUGHTON-SCOTT, M.R.C.S., B.A. Oxon.
London: H. K. Lewis & Co. Ltd., 136 Gower-street, W.C.1.

Free to the Medical Profession on request. Cloth-bound Ed. 5s.
ARTIFICIAL LIMBS.
"SOLVITUR AMBULANDO."
A Symposium on Prosthetic Achievement.
Pp. 72. 37 Coloured Plates.
"I congratulate you on this interesting, instructive, and artistic production. I consider it to be a very great addition to my library."—M.B., Ch.B., F.R.C.S.
J. E. Hanger & Co. Ltd., 7, Roehampton House, Roehampton, S.W.15.

2nd Edn. 490 pp. 14 Plates. 297 Illus. 30s. net, post 7d.
CYSTOSCOPY AND UROGRAPHY:
By JAS. B. MACALPINE, F.R.C.S.
"A credit to British surgery."—BRIT. JNL. OF SURGERY.
Bristol: John Wright & Sons Ltd. London: Simpkin Marshall Ltd.

DISEASES OF THE THYROID GLAND.
WITH SPECIAL REFERENCE TO THYROTOXICOSIS.
By CECIL A. JOLL, M.S., B.Sc., F.R.C.S. (Eng.).
Crown 4to. Fully Illustrated. £3 3s. net.
"No praise is too high for the author of this great book. It must be considered as the standard work on thyroid disease. Its pages summarise all that is known of this most interesting subject at the present day."—WEST LONDON MEDICAL JOURNAL.
William Heinemann (Medical Books) Ltd., 99, Great Russell-street, London, W.C.1.

3rd Ed., fully revised, 852 pp., 816 Illustrations.
EMERGENCY SURGERY. 50s. net; postage 8d.
By HAMILTON BAILEY, F.R.C.S. (Eng.).
Bristol: John Wright & Sons Ltd. London: Simpkin Marshall Ltd.

PROBLEMS OF
ANÆSTHESIA
IN GENERAL PRACTICE
By D. H. LUKIS, M.D., B.S. Lond.
Late Hon. Anæsthetist, South London Hospital; late Clinical Assistant, Ear, Nose, and Throat Department, Queen's Hospital for Children, and Hon. Medical Officer, Kingston Victoria Hospital.
Demy 8vo. 7s. 6d. net (postage extra). 158 + vi pages.
Hodder & Stoughton Ltd., Warwick-square, E.C.4.

9 Plates and 135 Text Illustrations. 15s. net; postage 6d.
DISEASES OF THE
EAR, THROAT AND NOSE.
By J. DOUGLAS McLAGGAN, F.R.C.S. Eng. and Edin.
Surgeon in charge, Ear, Nose, and Throat Department, Royal Free Hospital.
". . . probably the best text-book in this speciality at the disposal of the student. . . ."—ST. BART'S HOSPITAL JOURNAL.
London: H. K. Lewis & Co. Ltd., 136 Gower-street, W.C.1.

SAUNDERS'
NEW BOOKS & NEW EDITIONS
See Advertising Page 3.

Second Revised Edition. 82 Illustrations. 30s. net.
CANCER OF THE BREAST
AND ITS TREATMENT.
By W. SAMPSON HANDLEY, M.S., F.R.C.S.
John Murray, Albemarle-street, W.

SELECTED WRITINGS OF
JOHN HUGHLINGS JACKSON,
M.D., F.R.C.P., F.R.S.
Two Volumes.
I.—EPILEPSY AND EPILEPTIFORM CONVULSIONS.
II.—EVOLUTION AND DISSOLUTION OF THE NERVOUS SYSTEM: SPEECH: VARIOUS PAPERS: ADDRESSES AND LECTURES.
Edited by JAMES TAYLOR, M.D., F.R.C.P.
With the advice and assistance of GORDON HOLMES, M.D., F.R.C.P., and F. M. R. WALSHE, M.D., F.R.C.P.
Over 500 pages in each vol. Price 25s. net each; postage extra (inland 9d., abroad 10d.).
Hodder & Stoughton Ltd., 20, Warwick-square, E.C.4.

129 Illustrations (10 coloured). 12s. 6d. net; postage 6d.
DISEASES OF THE TESTICLE.
By HAMILTON BAILEY, F.R.C.S.
". . . one of the best monographs we have read."—*British Journal of Surgery.*
London: H. K. Lewis & Co. Ltd., 136 Gower-street, W.C.1.

FRACTURES.
By MEURICE SINCLAIR, C.M.G., M.B., CH.B. (EDIN.).
With an Introduction by Sir ROBERT JONES, Bt., F.R.C.S.
Pp. 550. 337 X ray photographs, photographs and diagrams. 24s. net.
Constable & Co., Ltd., London.

By H. CRICHTON-MILLER, M.A., M.D., M.R.C.P., Hon. Senior Physician, Tavistock Clinic.
INSOMNIA. An Outline for the Practitioner.
Price 10s. 6d.
Edward Arnold & Co., 41–43, Maddox-street, W.1.

With Doctors ★ GREAT FAVOURITES. ★ With Students

EDEN AND HOLLAND'S
MANUAL OF OBSTETRICS
By EARDLEY HOLLAND, M.D., F.R.C.P., F.R.C.S., F.C.O.G.
8th Edition. 12 Plates (5 Coloured) and 398 Text-figures. 24s.
"It is certainly up to date in every respect, and will undoubtedly retain its position in the forefront of British textbooks of obstetrics."
—JNL. OF OBSTETRICS & GYNÆCOLOGY.

TEXTBOOK OF GYNÆCOLOGY
By WILFRED SHAW, M.D., F.R.C.S., F.C.O.G.
2nd Edition. 4 Coloured Plates and 253 Text-figures. 18s.
"It is a first-class and lucid presentation of sane and sound gynæcological practice of to-day . . . will, doubtless, continue its wide appeal, and further editions are certain to be required."
—JNL. OF OBSTETRICS & GYNÆCOLOGY.

DISORDERS OF THE BLOOD
By L. E. H. WHITBY, *C.V.O., M.C.*, M.D., F.R.C.P., and C. J. C. BRITTON, M.D., D.P.H.
2nd Edition. 12 Plates (8 Coloured) and 60 Text-figures. 21s.
"Authoritative and comprehensive and up to date. It is also concise, readable and discriminating—in short a thoroughly good book."
—JNL. OF PATHOLOGY & BACTERIOLOGY.

J. & A. CHURCHILL Ltd., 104 Gloucester Place, LONDON W.1

FOR CARDIAC THERAPY

'FOLINERIN'

Schering

Pure Glycoside from the leaves of Nerium Oleander

'Folinerin' Crystals

'FOLINERIN' possesses that degree of cumulative effect which is necessary for successful treatment, but, even in prolonged medication, does not produce toxic reaction. Of special value is the marked diuretic effect and the absence of nausea.

Samples and Literature on request

SCHERING LIMITED, 185/192, HIGH HOLBORN, LONDON, W.C.1

Relief from

Bronchospasm and Asthma

FELSOL POWDERS

For Oral Administration

"... The powders can be prescribed by the medical man in accordance with the definite régime which he decides to adopt in the treatment of a case, the claim for felsol being that its administration relieves promptly the attack of asthma by its influence over bronchial spasm...."

Vide Notice in "The Lancet," 28.4.34, p. 929.

A complete survey in booklet form, including diagrams and illustrations, will be sent post free on application

BRITISH FELSOL COMPANY LTD.

Telephone: Clerkenwell 5862

Wigton House, 206/212, St. John Street, Clerkenwell - - - - - London, E.C.1

Telegrams: Felsol, Smith, London

OCTOBER 22, 1938

THE LANCET

A JOURNAL OF BRITISH AND FOREIGN MEDICINE, SURGERY, OBSTETRICS, PHYSIOLOGY, CHEMISTRY, PHARMACOLOGY, PUBLIC HEALTH, AND NEWS

No. 6008 LONDON: SATURDAY, OCTOBER 22, 1938 CCXXXV

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT

ADDRESSES AND ORIGINAL ARTICLES

The State and Medical Research. By Sir EDWARD MELLANBY, F.R.C.P., F.R.S. 929

Meningococcal Meningitis Treated with Prosepta-sine and Soluseptasine. By R. H. HANNAH, M.B., and F. G. HOBSON, F.R.C.P. (*with charts*)... 937

Slowly Fatal Pulmonary Embolism. By Prof. R. PILCHER, F.R.C.S. 942

Meningo-encephalitis Complicating Herpes Zoster. By Prof. J. H. BIGGART, M.D., and J. A. FISHER, M.D. 944

Severe Initial Deafness as a Sign of Acute Mastoiditis. By N. ASHERSON, F.R.C.S..... 946

CLINICAL AND LABORATORY NOTES

Varicella with Encephalitis. By R. SWYER, M.R.C.S. 947

White Forelock: A New Mutation. By A. M. NUSSEY, M.R.C.P. (*illus.*) 947

REVIEWS AND NOTICES OF BOOKS

Histological Technique. By H. M. Carleton, M.A., and E. H. Leach, M.A.... 948

Diseases of the Thyroid, Parathyroid and Thymus. By A. Crotti, F.A.C.S.... 948

Röntgenatlas der Asbestose der Lungen. By Prof. Dr. E. Saupe 949

Philippine Pagans. By R. F. Barton, M.S..... 949

Pediatric Surgery. By E. C. Brenner, F.A.C.S. 949

Annual Review of Biochemistry. Vol. VII. Edited by J. M. Luck and C. R. Noller..... 950

Secrets of Blind Intubation, and the Signs of Anæsthesia. By J. U. Human, M.R.C.S. 950

An Introduction to Human Physiology. By L. A. Crandall, Jr., M.D. 950

Sub-Acute and Chronic Pericardial and Myocardial Lesions Due to Non-Penetrating Traumatic Injuries. By Prof. E. Warburg, M.D..... 950

LEADING ARTICLES

INOCULATION AGAINST COLDS 951

SELF-ADVERTISEMENT IN PROFESSIONAL LIFE 951

DYSGERMINOMA 953

ANNOTATIONS

Research in Medicine 954

Anæmia Associated with Alcoholism 954

Dosage in Radiation Therapy of Carcinoma of the Cervix 954

Sulphanilamide and Malaria 955

Background to Lettsom .. 955

A New Remedy for Epilepsy? 956

A Full Investigation 956

Spinal Anæsthesia for Ileus 957

Bundle-branch Block 957

OPENING OF THE MEDICAL SCHOOLS

The Future of Medicine. By Sir HENRY DALE, F.R.C.P., F.R.S. 965

Out of Olde Bokes. By Lieut.-General W. P. MACARTHUR, F.R.C.P... 967

PANEL AND CONTRACT PRACTICE

The Survival of Insurance Committees—Future of Health Insurance—A National Medical Service—Treatment "in respect of" a Confinement 964

SPECIAL ARTICLES

Medicine and the Law: Dental "Operation" by Unregistered Person—Mistaken Identity in Mental Hospital—Presumption of Death 958

Reconstruction of Queen Mary College (*illus.*).... 959

Scotland: Medical Defence 959

Metropolitan Water Board: The New Laboratories (*illus.*) 963

Medicine at Cambridge: Recent Developments... 973

Yellow Fever 973

London Medical Exhibition: Drugs and Pharmaceutical Preparations 974

Infectious Disease in England and Wales 962

THE LANCET 100 Years Ago 936

CORRESPONDENCE

Honorary Appointments for Salaried Psychiatrists (Dr. I. Skottowe, Dr. W. A. Ramsay) 969

A New Chemical Contraceptive (Prof. A. Ellis, F.R.C.P., and others) .. 970

Oxygen Therapy (Drs. H. L. Marriott and K. Robson) 970

Determination of Blood Volume (Dr. Izod Bennett and others).... 971

A Modified Face Tent (Dr. J. Argyll Campbell).... 971

Spontaneous Hæmothorax (Dr. C. Allan Birch, Dr. G. E. Beaumont)... 972

Cancer of the Stomach (Mr. W. H. Ogilvie, F.R.C.S.) 972

Grains and Scruples (Rev. H. E. Tilston)..... 972

OBITUARY

Prof. Harold Dickinson Senior, F.R.C.S. 977

Joseph Power, M.B. 977

Ernest Bonney, M.R.C.S. . 977

Albert Richard Henchley, M.D. 977

GRAINS AND SCRUPLES

By A Voice in the Wilderness—IV 960

MEDICAL NEWS

University of Cambridge .. 978

Royal College of Surgeons of England 978

University of Sheffield 978

University of Manchester . 978

University of Edinburgh .. 978

University of Glasgow 978

University of Aberdeen 978

University of Wales 978

University of Hong-Kong . 978

Epsom College 978

St. Bartholomew's Hospital 978

London Jewish Hospital Medical Society 978

Society for Relief of Widows and Orphans of Medical Men 979

Glasgow Post-graduate Medical Association 979

Broadcasts 979

London Hospital 941

Alvarenga Prize..... 941

Royal Society of Arts..... 953

Naval Medical Compassionate Fund 967

Institute of Psycho-analysis 976

Joint Tuberculosis Council 982

NOTES, COMMENTS, AND ABSTRACTS

The Frequency of Surgical Procedures 981

The Dangerous Drugs Trade 981

Another Electric Heating Pad 981

The Pigment of Red Hair.. 981

Papworth Industries..... 982

Sex Instruction for Children and Adolescents 982

Napoleon as Patient 982

Treatment of Diaphragmatic Hernia 982

New Preparations: Hesperidin (Vitamin P) Tablets G.L. 982

Christmas Cards 950

Appointments 979

Vacancies 979

Medical Diary 980

Births, Marriages, Deaths 980

JUST PUBLISHED

NUMBER FOUR. With 5 Plates and other Illustrations. Royal 8vo. **10s. 6d.** net; postage 6d.

CHRONIC RHEUMATIC DISEASES

Being the Annual Reports of the British Committee on Chronic Rheumatic Diseases appointed by the Royal College of Physicians. **Edited by C. W. BUCKLEY, M.D., F.R.C.P.**

Number One. 12s. 6d. net; postage 6d. **Number Two. 10s. 6d.** net; postage 6d. **Number Three. 10s. 6d.** net; postage 6d.

NOTE.—These Reports will in future be issued twice a year as the Official Journal of the Scientific Advisory Committee of the Empire Rheumatism Council.

With 14 Plates containing 24 Figures. Demy 8vo. **7s. 6d.** net; postage 6d.

ARTHRITIS, FIBROSITIS AND GOUT

By **C. W. BUCKLEY**, M.D., F.R.C.P., Hon. Physician, Devonshire Royal Hospital for Rheumatic Diseases, Buxton; Lecturer on Arthritis and Chronic Rheumatism, British Postgraduate Medical School, etc.

LONDON: H. K. LEWIS & Co. Ltd., 136 GOWER ST., W.C.1

Just Published

INTRODUCTION TO
DISEASES OF THE CHEST

By

JAMES MAXWELL, M.D. (Lond.), F.R.C.P. (Lond.)

Assistant Physician and Demonstrator of Practical Medicine, St. Bartholomew's Hospital; Physician, Royal Chest Hospital; Consulting Physician, Royal National Sanatorium, Bournemouth

CONTENTS

SECTION I
THE HISTORY

CHAP.
1. THE SIX MAJOR SYMPTOMS
2. THE SIX MAJOR SYMPTOMS (*contd.*)
3. MINOR SYMPTOMS
4. THE AUXILIARY HISTORY

SECTION II
PHYSICAL EXAMINATION OF THE CHEST
5. INSPECTION
6. PALPATION
7. PERCUSSION
8. AUSCULTATION

SECTION III
SPECIAL INVESTIGATIONS
9. THE SPUTUM
10. BLOOD EXAMINATIONS—PLEURAL FLUID
11. RADIOLOGY OF THE CHEST
12. SPECIAL DIAGNOSTIC METHODS

SECTION IV
DISEASES OF THE RESPIRATORY TRACT
13. THE NOSE
14. THE MOUTH
15. THE LARYNX
16. THE TRACHEA AND BRONCHI

SECTION IV
(*continued*)
CHAP.
17. ASTHMA
18. BRONCHIECTASIS
19. TUMOURS OF THE BRONCHI
20. CHEST INJURIES—DISORDERS OF THE PULMONARY CIRCULATION
21. EMPHYSEMA
22. COLLAPSE OF THE LUNG
23. PNEUMONIA
24. BRONCHO-PNEUMONIA
25. PNEUMONITIS
26. LUNG ABSCESS
27. PULMONARY TUBERCULOSIS
28. PULMONARY TUBERCULOSIS (*contd.*)
29. TREATMENT OF PULMONARY TUBERCULOSIS
30. NON-TUBERCULOUS CHRONIC LUNG INFECTIONS
31. FIBROSIS OF THE LUNG
32. THE PLEURA
33. "PLEURISY"
34. EMPYEMA
35. TUMOURS OF THE PLEURA
36. THE MEDIASTINUM
37. THE DIAPHRAGM

INDEX

With 95 Illustrations

Demy 8vo, 328+xii Pages **12/6 net (postage 6d. extra)**

HODDER & STOUGHTON Medical Publications

Warwick Square, London, E.C.4

8.929

ADDRESSES AND ORIGINAL ARTICLES

THE STATE AND MEDICAL RESEARCH*

BY SIR EDWARD MELLANBY, K.C.B., F.R.C.P., F.R.S.
SECRETARY, MEDICAL RESEARCH COUNCIL

AN invitation to join the procession of illustrious men who have filled the position of Harveian Orator must be regarded as one of the highest honours by any man. To one who, in however humble a way, has endeavoured throughout his working life to follow in Harvey's footsteps, the invitation has a very special significance. For Harvey stands out as one of the greatest investigators, and his work—a wonderful combination of observation and experiment—is an example of the finest achievement of the human mind. The purpose of this annual festival is not only to provide opportunity for his praise. It is an occasion to renew our vows to follow his example and to forward those projects and ideals to which he dedicated his life. Harvey had many outstanding qualities, to which reference has been made by my predecessors in this office. He was, however, primarily a discoverer and his name acts as a trumpet call to everyone with the instinct to promote the science of medicine.

His election in 1630 as physician-in-ordinary to Charles I brought him into close association with the head of the State. One of the results of this association was permission to make use of deer and other animals in the royal demesnes for study, a privilege whose fruits are evident in the treatise "de Generatione." It would be idle to pretend that this royal action showed foresight or was more than a kindness bestowed on a good servant and friend. It does not compare in dramatic and scientific quality with what is probably the first recorded experiment in medical science by a king himself—Frederick the Second, Emperor of the Romans, King of Sicily and Jerusalem, known as Stupor Mundi, the Wonder of the World, A.D. 1192–1250. Of him it is recorded that he took two knights and gave them identical meals. One of these knights he then sent out hunting and the other he ordered to bed. Several hours later he killed both and examined the contents of their alimentary canals. He found that digestion had proceeded further in the stomach of the sleeping knight. All will agree that this was a good experiment, but whether it can be classed as clinical or animal experimentation remains doubtful.

The facilities and assistance provided by Charles I for Harvey, probably the first instance of State support for medical research, are being given nowadays by the State to hundreds of investigators from public funds granted by Parliament for the encouragement and promotion of medical inquiry. That the precedent established by King Charles has now developed into an important activity of the State would have rejoiced Harvey's heart. Harvey's position as a leader of medical science is so well recognised to-day that more and more men are endeavouring to follow his example and the revolutionary changes in medicine during the past 60 years only increase the appreciation of his foresight and skill. Many still living have seen this revolutionary phase in its entirety: the introduction of new methods of prevention, diagnosis, and treatment of disease; the enormous increase in hospital accommodation; the initiation and development of clinical laboratories and radiological departments; and the transformation and multiplication of the public health services. These developments are mainly due to the great increase of knowledge acquired from investigations made in the past 60 or 70 years. People began to realise then that health and disease are not conditions conferred upon man for humble acceptance, but that a certain method (Harvey's method) of acquiring knowledge is at hand whereby disease can be combated and death itself warded off. More men and women started investigations, knowledge accumulated, success bred success, and civilised man developed a spirit of optimism in health matters.

How recent has been the acceptance in this country of the new spirit can be seen from the late Earl Balfour's words in 1896: "I have all my life been an ardent believer in a cause which is often laughed at—the cause of the endowment of research. In that cause I most firmly believe and I think there is no branch of knowledge in which it may find a more useful field of application than in that of advancing medical knowledge." In 1900, pointing out how disgraceful was the equipment for medical research in this country compared with Germany, France, Switzerland, and Italy, he said "let us not be backward in this great international competition which surely may be said, in some way, to balance that more costly and destructive competition in armaments and, it may be, in commerce."

In this country, and even more so in the United States of America, scientific research is not supported by the public, even the enlightened public, on intellectual grounds but because it has been found to deliver the goods often enough to deserve special encouragement. In Germany, on the other hand, it had been accepted for a hundred years or more that medicine should be taught by those who could extend or had extended the boundaries of knowledge. Though great medical discoveries were made in the past century outside Germany, the researches which led to them were made by men of genius working independently and often under uncongenial conditions. Germany alone had an academic atmosphere saturated with the research spirit.

Whatever may be the present or future state of science in Germany, we ought to remember with appreciation the enlightened attitude which flourished at a time when medical research breathed but feebly elsewhere. Nor, in these earlier times, was the outlook utilitarian. The work of Purkinje, Johannes Müller, and Virchow did not suggest the cure or elimination of disease. A time came, however, when it was apparent that medical research could and did forge weapons to fight disease. With the discovery of antiseptics, antitoxins, and Salvarsan it came to be realised that medical and other research was not just an interest of a few curious people with a special aptitude for discovering facts with but little bearing on life. Wise men, both in public life and industry, saw that scientific research was the life-blood of modern existence—a means of providing easily the needs of mankind and the knowledge necessary for healthy existence under modern conditions. As might be expected, the earlier disinterested German attitude was first affected by the practical issues, and organised research there received even a greater fillip. Industrial leaders in Germany and in the United States of America also soon grasped that in industry it was good business to throw a sprat of expenditure on research to catch a mackerel of large profit.

* The Harveian oration delivered at the Royal College of Physicians of London on St. Luke's Day, 1938.

It has been sometimes said that it took the great war to make this country realise the importance of scientific research, and it is true that the Department of Scientific and Industrial Research was only set up in 1915, largely as the result of the urgent demands of war. The Medical Research Committee, however, was initiated in 1913. Practically all its activities until 1919 were directed to the solution of medical problems related to war, and right well did it justify itself.

The Source of Funds

Private endowment of research, medical or industrial, has no proud history in this country, although there are a few fine exceptions in medicine, and the large private endowments of medical research in America make our own public resources look meagre. Some of these endowments are expended internationally, a wise policy because all mankind can share immediately in the benefits of new medical discoveries wherever they are made. If the extensive support given to British medical research by the Rockefeller Foundation pricks the conscience of many Englishmen, the stimulus is not often big enough to produce a satisfactory response. During the present century rapid increases in medical research activity have taken place in this country and in the U.S.A.; ours has been organised and largely financed by the State, while theirs has been richly endowed and controlled by private interests. Both movements are of the greatest scientific and social significance, and each has already produced a good harvest, but the crops differ in many respects. The American record during the past 20 years has been a very fine one. There is good reason to believe that in America the State intends to supplement private endowment for medical research, and the Nuffield scheme at Oxford is possibly an indication that private persons here will, in future, be more likely to regard such research as worthy of support.

Financial aid from one or other source is essential. Money cannot, of course, buy discoveries, certainly not great discoveries, as it can buy manual labour, but it can release those with the necessary ability from the need of earning a living by ordinary work and enable them to devote their lives to research. Until recently scientific discovery in this country has depended only too often on the haphazard distribution of wealth. Sometimes, as with Darwin, private means have allowed leisure for experiment and contemplation. Sometimes a society, such as the Royal Institution, has subsidised men like Humphry Davy and Faraday in the same way as Trinity College, Cambridge, subsidised Newton. If these men had depended for their living on ordinary labour the discoveries associated with their names could hardly have been made by them. On the other hand, some of the best work has been done by men labouring under conditions of extreme simplicity. Would, for instance, the work of Claude Bernard and Pasteur have been better had they received abundant financial support early in their lives? It was when their work was more or less finished that they were given adequate laboratory facilities, not while they were making their great discoveries. The Harveys, the Claude Bernards, and the Pasteurs of this world will make discoveries with meagre apparatus and accommodation; more money or improved facilities will not swell their output and may indeed detract from its quality.

The historical instances of men given slight but real opportunity who have made discoveries of the first order have imbued us all with the determination that genius shall not in future be lost to the world by lack of money to provide such opportunity. The mental outlook and ability to discover is present throughout all grades of society, though it may not be equally distributed. The real discoverer is rare in all classes and it must be the object of civilised communities to find him and foster his activities. Those who choose research for their life's work are mostly content with a lower standard of living than that which they could often obtain in other walks of life. Though generally the more able the investigator the less his demands on life's amenities, the scientific genius when found must not be expected to use all his time and energy fending for a living. The larger number of men who work out the rich veins discovered by their leaders must also be looked after and given facilities for their work.

All will agree that this was the justification in this country for State support for research, failing adequate private endowment. State support, however, must be associated with State control which may be repressive and bureaucratic. The words control and bureaucracy have a disagreeable sound particularly in the ears of those searching after truth by experiment, when success depends upon freedom to work quietly. One of the main objects of this discourse is to show how State control of medical research can be compatible with freedom to the investigator; another is to explain the way in which State funds are used for the purpose of promoting discovery in medicine. A year ago Mr. Fosdick, the eminent president of the Rockefeller Foundation of New York, challenged me to define the general policy of the Medical Research Council in financing research workers. My inadequate answer was that their policy was to have no policy but to find the right men and back them in every way possible. Though this answer has an element of truth, and I propose to expand it here, I soon realised how misleading it might be.

History has demonstrated clearly that State endowment is compatible with the best type of medical research. Sir William Osler wrote in 1914:—

> "Is freedom of research necessarily shackled in Government harness? Certainly not in autocratic Germany, where the Reichgesundheitsamt was the centre of the free and brilliant researches of Koch and his colleagues, not only missionary researches in many parts of the world, but practical health campaigns, such as that against typhoid fever which could never have been undertaken without strong financial backing. Certainly not in democratic America, in whose Government bureaus Theobald Smith initiated those epoch-making studies on protozoal diseases, in which Walter Reed and his colleagues solved the problem of yellow fever and from which Stiles started on a world-wide campaign against ankylostomiasis—all memorable and life-saving investigations."

There was no reason why first-class medical research should not be done under State control in this country too. It is now 25 years since the Government decided to set up the Medical Research Committee under the National Health Insurance Joint Commission to administer funds provided by the National Health Insurance Act of 1911. This arrangement was terminated in 1919, and in 1920 the Medical Research Council received their present title and constitution. Funds for their work were provided directly from the Treasury in the form of a Parliamentary grant-in-aid and the Council became subject to the general direction of the new Committee of the Privy Council for Medical Research with the Lord President of the council as chairman.

Certain Dangers of State Control

POLITICAL INFLUENCE

Some will wonder whether a system of State support does not lend itself to political influences of a kind which may interfere with the character of work done and even bias results or their interpretation. This danger is implicit in any State activity, and safeguards against it can easily be devised. In this case, while Parliament has ultimate control the Council have been given great latitude in their policy and finance, and the disposal of the funds supplied is at their complete discretion.

Of the present 11 members of the Council, 8 are men chosen for their scientific and medical qualifications, each name being approved not only by the Lord President of the Privy Council but also by the president of the Royal Society. Only two members are politicians in the sense that one must represent the House of Lords and the other the House of Commons. At present the remaining member, the treasurer, is a distinguished banker. Direct political influence is not likely to affect the decisions of a body of this nature. Lest it should be exerted through the permanent officials, the Secretary of the Council is elected by the Council itself—i.e., by the scientific majority of the members. As the Secretary acts also for the Committee of the Privy Council of Medical Research, there are no administrative officials or machinery standing between the Medical Research Council and the Lord President of the Privy Council. Thus the Council consist mainly of a group of experts in medical research with full authority to use and control the public money placed at their disposal, independently of all other bodies.

In my experience not only has political influence been absent but even political interest has been uncommon. Now that the number of requests from other Government departments for help is growing rapidly, questions and discussions arise in Parliament which are often not conducive to the quiet unbiased investigation of difficult medical problems. Needless to say every precaution must be and is taken to protect scientific workers engaged in these investigations. It is clearly necessary to be constantly alert to prevent the possibility of results and deductions from being influenced by political interest, for if once bias due to this or other cause entered into any inquiry, the Council's reputation would be tarnished. All concerned may rest assured that political influence has not had and probably will never have any detrimental effect on medical research controlled by the Council as at present constituted.

DICTATORSHIP

Another doubt sometimes expressed is whether any group of men, however able, should be in a position to act almost as dictators in a whole branch of scientific study, lest they should act as a body of official interpreters, and if they are wrong, misdirect the lines of investigation and even distort the interpretation of results. A sure safeguard against the continuation of any biased attitude on the part of the Council is the constant change of personnel, whose individual term of office is four years. But this question has a bearing on the Council's refusal to accede to the appeals occasionally made for moral backing of particular views and for a pontifical declaration in favour of special solutions of problems of health and disease.

For the most part financial support is given to good work, though occasionally work of a more doubtful quality is assisted until its true value is seen; but in any case the results obtained and the views expressed are those of the individual investigators and not of the Council. The danger of being charged with shouldering the responsibility for particular views of medical problems often prevents the Council from referring to discoveries which they have helped, or from giving the great praise sometimes due to specific research. Some may deplore a limitation which may and indeed does result both in delay in the appreciation of good and in the denunciation of bad work. But an official body must not assume too much authority as to what is acceptable or unacceptable, and fortunately, in these days when many indefatigable workers out for the truth are prepared to praise and unafraid to condemn, the establishment of true values is rarely delayed.

APPRAISAL

Mistakes in appraisal are inevitable; relatively poor workers may stand, especially in the eyes of their near colleagues, on a pedestal of distinction and, much more serious, the first-class discoverer and his work may go unrecognised. It is not so long ago since Lister passed through 10 years of obloquy before the value of antisepsis was accepted. The Medical Research Council can do something to prevent such incidents by arranging for the repetition of the criticised investigations, but that is not enough to prevent the harm that may ensue from irresponsible criticisms. In all applied science there are a few men who have contributed nothing to knowledge but have sought recognition as authorities by criticising the work of others. The man of criticism is in a safe position because, if he is wrong, people forget about it; if he is right, he is regarded as an oracle. If the discoverer is wrong, either in fact or in interpretation, he stands the chance of having his future work disregarded or his spirit so broken that he foresakes the field. Long experience has taught me that it is seldom in the facts of a discovery, but rather in their interpretation, especially the first interpretation, that mistakes are made.

The appraisal of a new discovery, especially when repetition of the work needs much time and care, is clearly difficult. Nor, so far as the individual worker is concerned does the matter end always with its acceptance. The following letter, written by Lord Conway to his daughter-in-law, Anne Conway, in 1640,† shows that even Harvey's reputation as a clinician was anything but raised by his discovery of the circulation of the blood. Anne Conway suffered severely from recurrent headaches and Harvey at one time was her doctor. Subsequently many other physicians endeavoured to free her from this disability.

DAUGHTER,—I am very glad of your health. . . . I hear that you have a great good opinion of Dr. Harvey. I think you do well to love and respect a person of his merite for I think he hath deserved extreamely well of all learned men, for what he hath found out, or offered to the world to enquire farther into; he is a most excellent anatomist, and I conceive that to be his Masterpeece, which knowledge is many times of very great use in consultations, but in the practicke parte of Physicke I conceive him to be to mutch, many times, governed by his Phantasy, the excellency and strength whereof did produce his two workes to the world.‡ . . . If I had not a great desire to keepe you I would not write anything

† Conway Letters. By M. H. Nicolson. London. 1930.

‡ Cf. John Aubrey, "Lives," London, 1813, p. 300. "I have heard him say, that after his booke of the Circulation of the Blood came out, that he fell mightily in his practise, and that t'was beleeved by the vulgar that he was crack-brained: and all the physitians were against his opinion and envyed him."

against Doctor Harvey whitche might in any kinde seeme to preiudice him, for I do greatly esteeme and value him, but I think this is trueth as it is that I beleave that my sonne would not know where to find such a wife nor I sutch a daughter, therefore I pray preserve yourselfe for your owne sake, and then if there be any place left for

Your most affectionat father
CONWAY and KILULTA.

Paris, Aug. 9th, 1640.

This letter has a familiar ring, but we may hope that it will not prevent the many young medical men undertaking clinical research from entertaining and establishing by experiment "phantasies" as important as that of the circulation of the blood. Wrong personal judgments and false values are always liable to occur and this is one of the strains which individual workers must expect to suffer. But none can doubt that the estimation of the relative value of discoverers and their discoveries is of great moment to the Medical Research Council, all of whose actions in promoting research are a reflection of their judgment of men and their investigations. In my experience of the Council's work more mistakes of judgment are due to benevolence than to harshness.

In these times especially, when discoveries in medical science are coming so fast that it is difficult for those "in the practicke parte of Physicke" to take full advantage of them, it is important that the attitude of the Royal College of Physicians, which has the right and duty to pronounce on such discoveries as are of practical import, should be enlightened, balanced, and just.

Work of the Medical Research Council

A brief description of the mechanism and some of the general principles guiding the actions of the Medical Research Council is set out below because (1) many medical men interested in research are not familiar with them, and (2) a number of countries have recently embarked on similar projects, some of them with a type of organisation less likely, according to our experience, to give the best results.

ADVISORY COMMITTEES

For general guidance of detailed work, the Council rely on the advice of special committees. Here again the question of personnel is crucial; every member should be chosen primarily because of his capacity to aid investigation. Representation either of territory or of learned societies must be absolutely subsidiary to the main purpose of research itself, and on committees detailed technical knowledge and sound judgment alone are essential. Representation on committees must be that of research in different parts of the special field of investigation and it is wise to have a number of active workers in any body whose duty it is to plan, initiate, and guide investigation into unknown territory.

The Medical Research Council have 27 such committees, which include those for clinical science, therapeutic trials of new remedies, anæsthetics, human nutrition, vitamins, dental disease, mental disorders, tuberculosis, radiology, radium beam therapy, vision, hearing, hormones, bacteriology, bed-bug infestation, chemotherapy, statistics, school epidemics, human genetics, tropical medical research, industrial pulmonary disease, toxicity of industrial solvents, physical exercise, industrial psychology and heating and ventilation. The Industrial Health Research Board, an important subsidiary of the Medical Research Council, also receives advice and guidance from those committees whose work is primarily associated with problems of industry. Some of them are appointed conjointly with other bodies, for instance, with the Royal Society of Medicine (anæsthetics), the Lister Institute (vitamins), the British Empire Cancer Campaign (radiology), the Department of Scientific and Industrial Research (heating and ventilation), and the Agricultural Research Council (tuberculosis).

The services of all the members of these committees are given voluntarily and I should like to take this opportunity to refer to their magnificent work in giving advice and help which is essential for the work of the Medical Research Council. It is particularly pleasing to record that nearly 60 of the members of various committees are fellows or members of this College and 15 are fellows of the Royal College of Surgeons. The Council owes a great debt of gratitude to the willing coöperation they have always received from the two Royal Colleges; any State institution which can call upon such ready and voluntary help must consider itself blessed.

FINANCE

The annual grant from the State to the Medical Research Council is now £195,000, nearly four times as much as the Medical Research Committee received at its inception 25 years ago. The block grant is considered every five years, a method which gives the Council the advantage of being able to plan ahead with some feeling of security, and the disadvantage of having to provide suddenly for expensive research, often at the request of other Government departments, out of a fixed income, thus having to curtail the natural programme. It tends to lead to periods of expansion followed by periods of penury. The present time is one of penury. One year of penury in five is probably good, as it gives an opportunity for reviewing research programmes more closely and cutting out any dead wood. With increased experience, however, dead wood becomes more and more rare, and it is nowadays very difficult to save in this way during times of financial stress.

In addition to its public funds, the Council are in a position to help directly or indirectly by advice in the disposal of private endowments for medical research. Private funds held by the Council for disposal as interest or capital amounts to over £100,000 and, in addition, they receive sums—amounting to £12,000 per annum—for special purposes from the Rockefeller Foundation, the Dental Board, the Leverhulme Trustees, the British Empire Cancer Campaign, and the Halley-Stewart Trustees. Altogether the sum at the disposal of the Council amounts to about £220,000 per annum.

The meagre financial support provided by the State for medical research has recently been criticised, both in the press and in Parliament. It has been asked why, since it is mainly by research that the Government can hope to reduce sickness and the expenditure it involves, only £195,000 per annum is provided by the Government for research on disease which costs the country from £200,000,000 to £300,000,000 annually. This public expression of concern is satisfactory as a sign of confidence that the annual grant has been justified; and there is no reasonable doubt that in course of time more money, which is certainly required, will be forthcoming. The Treasury naturally demand that every request for an increase in research expenditure shall be justified. The Medical Research Council's finance has been slowly and steadily built up and on the whole it has provided the means for progressive development. The main limiting factor in all research activity is personnel, and the number of people who are trained for and capable of doing medical research is not large. By various means the Council are endeavouring to increase this number and more money will be required when more trained investigators are available. Some system must

also be sought for financing sudden important calls for organised research made by other Government departments, which at present interfere with the normal programme of development.

There are three main directions in which the Council dispose of the money: (1) the establishment and maintenance of the National Institute for Medical Research at Hampstead and Mill Hill; (2) the maintenance of a number, rapidly growing, of research units, both clinical and laboratory, and of whole-time workers at various centres; and (3) the provision of grants to individual workers for specific pieces of research at many of the universities and hospitals throughout the country.

NATIONAL INSTITUTE FOR MEDICAL RESEARCH

This organisation was set up with the idea of doing large-scale and long-distance work requiring investigation by teams, and of a nature not suitable for university or hospital laboratories.

Here, under the direction of Sir Henry Dale, F.R.S., the work is done in two main divisions: physiology, pharmacology, and biochemistry on the one hand, and experimental pathology and bacteriology on the other hand. An active subdivision of the former is endocrinology, while subdivisions of the latter include protistology and microscopic and physical methods. In addition there is a department of biological standards whose personnel is small, since every member of the staff of the National Institute is expected to contribute his special knowledge of a particular problem to this important part of the work.

The work of the National Institute has always reached the highest standard. To recall the many triumphs would be a pleasant task, but I must here dwell on one aspect only of its work, of particular interest to the practising doctor.

Standardisation of biological substances.—In this work the National Institute has led the world and has rendered a great practical service to mankind. Here have been devised, are held and distributed, standards required by the British Government for the purpose of the Therapeutic Substances Act, others for the Health Organisation of the League of Nations, and some made necessary by the inclusion in the British Pharmacopœia of biological assays for certain remedies. The following standards are held at the National Institute.

Antitoxins and antisera.—Tetanus antitoxin; diphtheria antitoxin; gas gangrene: antitoxin (*a*) perfrigens, (*b*) vibrion septique, (*c*) œdematiens; staphylococcus antitoxin; antidysentery serum (Shiga); antipneumococcus serum, types 1 and 2.

Drugs.—Digitalis, ouabain, strophanthin, arsphenamine, neoarsphenamine, sulph-arsphenamine.

Vitamins A, B, C, and D.

Hormones.—Insulin; pituitary (post. lobe); œstrus-producing hormones: (*a*) hydroxyketonic form (œstrone), (*b*) benzoate form (œstradiol monobenzoate); male sex hormone (androsterone), corpus luteum hormone (progesterone).

Recently additional standards have been adopted by the Health Organisation of the League of Nations for 4 of the active principles of the anterior pituitary gland and these will be prepared and stored at the National Institute.

The fact that a doctor prescribing these drugs knows their exact strength in terms of units of activity is due largely to the endeavours of the workers at the National Institute for Medical Research. In the establishment of standards adopted internationally workers of many other countries have also played an important part. Needless to say it is not only practising doctors who profit by the standardisation of drugs. Discovery itself goes forward much more rapidly when investigators know the exact strength of the biologically active compounds with which they are working.

In addition to this service, the Medical Research Council maintain at the Lister Institute a *National Collection of Type Cultures of Micro-organisms*, so that any doctor in the world can obtain for a nominal sum a specimen culture of almost any type of micro-organism. No less than 5000 such applications were made last year. Similarly standard bacterial suspensions and sera for the diagnosis of enteric, dysenteric, brucella, and meningococcal infections can be obtained from the *Standards Department* maintained at the pathological laboratory of Oxford University by the Council. This work necessitates continuous research both in the maintenance of standards, in the search for new ones, and in helping towards a solution the innumerable problems which arise during their use.

RESEARCH UNITS AND EXTERNAL STAFF WORKERS

The second line of policy adopted by the Council for promoting medical research—the placing of units of research in different institutions—has shown great developments in recent years and its progress is limited only by finance and personnel. The Council make themselves responsible for the payment of salaries and the actual cost of the research at such units, but the university or hospital is expected to provide accommodation, ordinary services and, where appropriate, beds and nursing facilities. The success of each unit depends largely on the choice of a suitable director, who joins the Council's whole-time staff; the unit forms an integral part of the institution to which it is attached and comes to be regarded with pride by its hosts. The following units have been established by the Council:—

(1) The department of clinical research at University College Hospital; (2) the neurological research unit at the National Hospital for Diseases of the Nervous System; (3) the department of research in puerperal infections at Queen Charlotte's Hospital (with the aid of (*a*) the Rockefeller Foundation, and (*b*) the Pilgrim Trust); (4) the department of bacterial chemistry at the Bland Sutton institute of pathology and Courtauld institute of biochemistry of the Middlesex Hospital, with the help of the Leverhulme and Halley-Stewart Trustees; (5) nutritional units (*a*) at the Lister Institute, and (*b*) at the Dunn nutritional laboratories, Cambridge; (6) a unit of clinical research at Guy's Hospital; (7) a unit of research on mental defect at the Royal Eastern Counties Institution, Colchester; (8) a unit of research in experimental and clinical surgery at Edinburgh University and the Royal Infirmary, Edinburgh; (9) a department of statistics at the London School of Hygiene and Tropical Medicine; (10) a unit of industrial psychology at Cambridge University.

Other members of the staff of the Medical Research Council are seeded in other universities and hospitals, each an expert in his own line and acting as a central stimulus to those around. Some of the subjects and presented by these workers include:—

(1) Experimental pathology; (2) diseases of children; (3) inheritance and disease; (4) physiology and pathology of vision; (5) biological effects of radiation; (6) pathology of the nervous system; (7) growth and development; (8) bacteriology of tuberculosis; (9) enzyme chemistry; (10) chronic pulmonary disease of mine workers.

The influence of this policy on medical research in individual universities, hospitals, and medical schools is undoubtedly great. Some of the appointments are too recent to have developed their maximum effect, but the work done in some of the older established units has achieved international repute. There are

still many important gaps and the expansion of the policy will undoubtedly continue.

RESEARCH GRANTS: PERSONAL AND EXPENSES

The third part of the Council's policy is the allocation of personal and expenses grants to individuals. The personal grants are usually limited to three years. This rule is not so rigidly enforced as to cut short promising and successful research, but its adoption was forced on the Council, after many years of experience, by the number of grantees who became "dug in," with the result that much of the Council's money was apt to be frozen in relatively unproductive research. The essence of this part of the expenditure is to be fluid, so that new problems can be attacked and new personnel given a chance to try their hand at research.

The initiative for these grants nearly always rests with the head of a laboratory or hospital in favour of some individual worker, or with the worker himself. The success of the application depends upon the individual and his choice of subject, and the kind of help given varies from personal grants for whole- or part-time work to provision of research expenses or, to established workers, of means for technical assistance. It is in this part of the Council's activities that the various committees are most helpful.

It is difficult to appraise the real value of this policy. It is the side of the work of the Council of which most is heard. A survey of acknowledgments in scientific and clinical journals reveals the number and nature of these grants. There is undoubtedly some wastage, but since at any time about 300 separate investigations are being subsidised it is not surprising that all the geese chosen do not develop into swans. At the worst, however, no one suffers from the opportunity of trying his hand at research and often the results exceed expectation, both in the actual outcome of the investigation and in the training of scientific method gained by the grantee.

One point that ought to be realised is that the Council provide money not to institutions but to individuals because it is essential to control the choice of the worker and the type of investigation. Much trouble and criticism have arisen through lack of appreciation of this rule. A university or hospital planning a scheme of medical research which they cannot completely finance should consult the Council if they wish for financial support before the personnel are appointed.

After a personal or expenses grant is once made, the rein is held very slack, and the worker is given full freedom to develop his problem. He is encouraged to keep in touch with other investigators studying allied subjects and it is the duty of the Secretary to help him in every way. Apart from submitting a short statement each year to be grafted into the annual report of the Council and the return of vouchers for expenses, the grantee has absolute liberty and his work is generally allowed to continue for three years. By this time the worker, if at all successful, qualifies either for a further grant or for one of the many fellowships now established or is placed in a post allowing research facilities. By this means also many young clinicians are given an opportunity both to research and to establish themselves.

This interest of the Council in providing personal and expenses grants must not be viewed too narrowly in terms of discovery; its influence in recruitment and education must also be taken into account.

RESEARCH FELLOWSHIPS

One other activity of the Medical Research Council touches this College closely—the policy of awarding travelling fellowships in research. The major part of these is generously financed by the Rockefeller Foundation of New York and another part is paid out of the Council's private endowments, all awards being at the discretion of the Council.

Each year a large number of applications for these fellowships is received from young medical men with excellent medical and scientific records. Last year 19 went abroad for a year's study, mostly to America, under these schemes, and in the course of 15 years 131 men and women have had this opportunity, of whom 33 were appointed to study tuberculosis. Of the first 79 Rockefeller fellows, 19 have been elected to professorships and many others hold important academic posts. A large number of the prominent young medical men in this country—both in clinical and laboratory work—will be found among the past holders of travelling research fellowships.

There can be little doubt that this enterprise is one of very great benefit to medical science.

RESEARCH FOR GOVERNMENT DEPARTMENTS

Questions of health and disease in all their aspects are assuming greater prominence in the view of Government departments and the assistance of the Medical Research Council is more and more in request. Mostly the demand is for investigation which will lead to a practical solution of difficulties. Such inquiries may be unattractive to workers either because an effective answer to the problem can be foreseen and only routine work is needed to produce it, or because the problem is so difficult that it seems doubtful whether a categorical answer expected will emerge.

A sample of the first sort of problem is the need to investigate systematically the toxicity of solvents, especially volatile ones, used in industry. A sample of the second type is the high incidence of chronic pulmonary disease which simulates and may be closely related to silicosis, a condition common among certain groups of miners in South Wales. The ætiology of silicosis is itself obscure and the subject of chronic pulmonary disease simulating silicosis bristles with difficulties. The questions constantly asked in Parliament about the progress of the work, although inevitable under the circumstances, do not ease the task of those responsible for the large investigation now being made.

On the other hand some of the problems raised by Government departments are welcomed because they are likely to yield a rich harvest—e.g., in tropical medical research.

The Council have sent a number of trained workers to different parts of the tropical Empire and have also embarked on a scheme for training young men in research in tropical diseases. Quite recently they have also appointed a small number of experts to direct and coördinate a large nutritional survey in many colonial territories. This important survey, which will include agricultural, economic, social, and anthropological inquiries, as well as dietetic and nutritional, has been undertaken with the object of finding the most natural and economic means for raising the standard of health and efficiency of all living in these territories.

Everybody will approve the growing habit of calling in the aid of the three departments of applied science—the Department of Scientific and Industrial Research, the Agricultural Research Council, and the Medical Research Council—as a great advance in government, and this part of the activity of the Medical Research Council is of the utmost importance.

Initiative in Research

As to the actual research supported by the Council, the initiative rests with the Council in so far as the choice of permanent staff is concerned. This choice depends on the merits of each member and on the subject he represents, though once appointed the staff have wide liberty of action in planning investigation. In the work subsidised by personal or expense grants the initiative lies solely with the investigator.

The Council seldom choose particular diseases for investigation; generally the choice is of a broader nature, so as to include a group of diseases or a type of treatment of wide application or a system of physiological control.

For instance, the decision to encourage the study of *virus diseases* in the early days of the National Institute for Medical Research led to the appointment of a staff of workers under Sir Patrick Laidlaw, F.R.S. The initial choice of distemper in dogs for investigation allowed direct animal study and a freedom for experiment that could not easily be got by the study of a human virus disease. Everybody knows the fine results obtained which not only provided a method of preventing distemper but allowed the extension of the research to other virus diseases and in particular to epidemic influenza, when the ferret method of study was discovered.

More recently the Council decided to extend their interests in *endocrinology* and appointed Mr. A. S. Parkes, D.Sc., to lead this work. An energetic team is investigating endocrinological problems from all angles and also working in close harmony with other workers on the laboratory and clinical aspect of the subject throughout the country.

The decision of the Council to implement their wish to develop investigation of *chemotherapy* on a large scale was made possible by substantial financial aid for this purpose from the Treasury. The expansion of this new work had to be delayed because it necessitates the rebuilding of the National Institute on another site.

These are some examples of the kind of initiative in specific research shown by the Medical Research Council. In a sense, all their appointments to the permanent staff are made with this object, since the policy is to create posts for suitable men in the subject to be stimulated and not to appoint men to established posts.

Clinical research.—The desire of the Council to encourage clinical research by the setting up of clinical units is now well known. This programme is being slowly but steadily developed, and as men suitable for appointment to posts of this nature appear, more units will be set up. If clinical research is to enter into its kingdom, success in its early enterprises must be obtained and this can only happen if first-class investigators are appointed to these posts.

It will be clear why the Medical Research Council have not usually adopted the practice of making an organised attack on special diseases such as rheumatism and cancer, although of course they support much individual research in these subjects. Extensive ad-hoc research on a disease like rheumatism, however important as a practical problem, is liable to be unprofitable until the master key of its ætiology or some other essential fact has been disclosed. This master key is just as likely to be discovered by the use of the experimental method over a wide field as by directly studying a particular disease in which the experimental method is hardly available. The success of team-work depends either on brilliant leadership or on the working out of a special line of inquiry, usually supplied by the observation of one individual. The difficulty is not to arrange team-work but to find the outstanding individual discoverer, the Harvey, to blaze the trail.

Some Criticisms Answered

Criticism is often made of the type of medical research supported by the Council. Some say that this work is generally too academic and includes too many problems of biochemistry, biophysics, and physiology at the expense of clinical research and direct attack on disease. The opposing school say that more money ought to be used for the support of fundamental research in medical science from which all major discoveries have come. The fact is that there is no royal road to discovery in medicine and all we know is that the experimental method used by Harvey with such brilliant results is still the sure method for acquiring knowledge and "searching out nature."

Claude Bernard took the view that all experimental medicine was applied physiology, a view successfully challenged by the results of the investigations of Pasteur, Koch, and of the army of bacteriologists who followed them. When all disease came to be regarded as due to the invasion of the body by some form of materies morbi, the body itself was either forgotten completely or attention was mainly confined to the blood and its immunological powers. In more recent times, the Claude Bernard philosophy has received wider acceptance. The sooner the investigator recognises the truth of both the physiological and the invasive bases of disease and the close interaction of these factors, the quicker will be the advance of medicine. Defence of the body against invasion by pathogenic micro-organisms represents a physiological process and there ought to be no dividing line between the two aspects of the subject for the wise investigator.

My predecessor, Sir Walter Fletcher, whose wisdom in guiding the policy and action of the Medical Research Council for the first 19 years was exceptional, was strongly imbued with the Claude Bernard point of view and played no small part in encouraging the revival of this philosophic outlook on medical research. It is a point of view requiring wise interpretation and tends to mislead those of narrow orthodox outlook who think of physiology in terms of the text-book. To take an instance of this:—

Defects of vision and hearing being the two commonest and most widespread calamities of modern life the Medical Research Council set up two committees in 1925 and 1928 to help in the attack by research on these diseases. The names "physiology of vision" committee and "physiology of hearing" committee suggest that defective vision and hearing will be controllable when the physiological mechanisms of the eye and ear are understood, and were not intended to disorientate research and restrict the investigations to purely fundamental and academic problems. But I remember, soon after I became secretary of the Council, asking a prominent member of one committee why no research was directed to such common defects as middle-ear disease and oto-sclerosis, reminding him that about 2,500,000 people in this country were reputed to suffer from a disabling degree of deafness. He answered that he had not realised that such work came within the terms of reference of the committee.

This represents a common attitude of mind of physiologists towards medical research and yet outstanding success in discovery has followed the extension of interest by the physiologist into a function going wrong. Again and again we have seen

points of major physiological interest established by work on the pathological side.

What would we know at present about such things as vitamins B_1, C, and D, insulin, thyroxine, cortin, liver and stomach active principles of pernicious anæmia, if experimental research had not been directed to the abnormal? Yet all these are physiological substances of the first order. Who can doubt that the physiology of the eye would be greatly extended by a knowledge of glaucoma, of the blood-vessels by a knowledge of the cause or causes of hyperpiesis, of the heart by a knowledge of the causes of auricular fibrillation, of the kidneys by a knowledge of albuminuria, and of the alimentary tract by a knowledge of gastric and duodenal ulcer, appendicitis, and colitis. It is hardly more unlikely that a physiological truth will come out of an experimental study of a pathological condition than that a fact of pathological significance will result from a purely physiological study. Every man working on a problem from either angle ought to be familiar with the other aspect. In recent years the Medical Research Council have endeavoured to diminish the gap between them by offering studentships to highly qualified young men for experimental pathology as well as for clinical investigation. The best qualification for such men is undoubtedly a good training in physiology, and physiologists in general would find a greater opportunity for essential discovery if they realised that a study of abnormality of function often offers the key to the elucidation of the normal process. Harvey himself did not confine his observations to one aspect of his problem. When necessary he called up evidence from every branch then known of physiology, pathology, and clinical medicine to support his argument.

We must continue to break down these artificial barriers between the medical sciences. It is true that each subject is now so big that any one man can only be a master of a small part of it; but expert assistance is so easily available that the investigator need only know sufficient about related problems to realise when to call for such assistance. Even the pure chemist and physicist now show great readiness to join in solving biological problems and workers in medical science can generally count on their help.

The Future

And now, what can be said of the future? Short of a catastrophic change which may upset or even destroy national life, the future of medical discovery is bright. Past experience shows that whatever problem concerning the body can be formulated by the human mind, a solution or partial solution of it is possible. There is no doubt that more and more knowledge giving control, both preventive and curative, of disease will be obtained. The limiting factor in this progress will always be the men of genius to make the first-class discoveries, but with the spread of educational opportunities to poorer people, more of these men may present themselves. Now that the State have put their hands to the plough, no unsurmountable difficulty may be expected in the direction of finance, if the situation is handled wisely.

The difficulty I foresee is not that of obtaining knowledge but of its application to human needs. Undoubtedly, as in the past, curative remedies as they appear will be generally taken up by the medical profession. Much of the new knowledge to be gained, however, may concern the prevention of disease and especially of chronic and degenerative diseases, including cardiovascular disorders, rheumatism, and pulmonary disease. The adoption and application of this knowledge will generally depend on the degree of education and wisdom of individuals. In some cases it will involve Government action. Without an enlightened public opinion the average person will do nothing to save himself and the State even less. If we are to continue as a successful democracy, dependent on public opinion for action, this must be guided suitably and quickly in problems of health as in other matters.

It seems to me that one of the most important functions of this Royal College in the future will be to lead public opinion and to guide State departments, especially in matters of preventive medicine. I have already explained why the Medical Research Council cannot advertise the value of the discoveries of its investigators, or continually interpret these discoveries to the public. Their job is solely to promote discovery, not to educate either the profession or the public. The Royal College of Physicans, on the other hand, is an ideal body for giving guidance and pressing for action, if such be needed, when scientific discovery has supplied new knowledge of importance to public health. Its independence and freedom from political relations and the high and honourable standing of its fellows would give its edicts an unassailable power. Consider one instance where the College could have played a decisive part. We are all familiar with the shocking neglect in th country to make use of available knowledge to prev diphtheria by preventive inoculation. Whereas some places, for instance in the province of Ont diphtheria has been practically eliminated, in country there are more than 50,000 cases of the dis annually and 3000–4000 deaths. Surely this situa would not have arisen if there had been an organisat in the authoritative position of the College to give t lead and to indicate at an early stage the right actio to be taken.

Other instances could be given and many others will arise in the future. It cannot be doubted that this great gap between medical discovery and the public requires serious attention.

I have now completed my task of giving a bird's-eye view of the modern movement of State support for medical research. It would be idle to pretend that the State or any other body could do much more in this matter than supply facilities to assist and guide the natural genius of the country in studying problems related to health and disease. Much remains to be done but, bearing in mind the limitations of any such enterprise, it will probably be agreed that the entry of the State into this field of discovery has been both stimulating and fruitful.

THE LANCET 100 YEARS AGO

October 20th, 1838, *p.* 138.

From a lecture by M. Magendie at the College of France.

. . . What sense, in truth, is there in applying the word *inflammation* to our organs? Do our tissues really take fire? I confess I know of no example of such a phenomenon. When the blood rushes to a part in abundance, a certain rise of temperature, no doubt, occasionally follows; but it only reaches a few degrees above the normal standard of the organ, and never exceeds that of the blood in the left ventricle. . . . Again: What on earth is the meaning of the word *irritation*? . . . How long, I should be glad to know, have our organs been proved susceptible of feeling passions—of becoming irritated—I had almost said of getting angry? The medical language of our schools is almost from one end to the other an incoherent metaphor. Figures and tropes have their merit, I allow; but their fit place is in a poem, or a romance, and the science we cultivate will, I trust, cease to be ranked with such performances.

MENINGOCOCCAL MENINGITIS TREATED WITH PROSEPTASINE AND SOLUSEPTASINE

RECORD OF NINE CASES

BY R. H. HANNAH, M.B. Edin.
HOUSE PHYSICIAN AT THE RADCLIFFE INFIRMARY, OXFORD; AND
F. G. HOBSON, D.S.O., D.M. Oxon., F.R.C.P.
PHYSICIAN TO THE RADCLIFFE INFIRMARY

SINCE 1936 when Buttle and his co-workers demonstrated the protective and curative properties of sulphanilamide against meningococcal infections in mice,[2 3] reports have appeared of the successful clinical use of this drug.[1 4 5 6 11 14] The success achieved appears to have been greater than with any previous although the preparations employed and the administration have varied.

[redacted] 2nd and March 2nd, 1938, eight coccal meningitis were admitted to firmary and were treated with ivatives. Of these seven survived drocephalus which developed in tment. On May 5th a further which was similarly treated, but patients was given serum.

aith showed that in six of these ococcus belonged to Group I (old); in two cases it was not typed. ganism is the one prevalent in recent he case admitted on May 5th was a Group II organism (old Types II and IV). age-groups of the patients were :—

20–30	..	..	1	5–10	..	..	2
10–20	..	..	1	0– 5	..	..	5

The results of treatment are briefly summarised in Table I, the cases being shown in their order of admission to hospital. Table II shows the results of culture and the examination of stained films.

TABLE I

No.	Age.	Sex.	Day of disease on admission to hospital.	Meningococcus group. I	Meningococcus group. II	Treatment.	Result.
1	18 yrs.	M.	2	+	–	P. & S.	Recovered.
2	2 yrs.2 mos.	M.	3	+	–	P. & S.	„
3	1 yr. 6 mos.	F.	3	+	–	P. & S.	„
4	3 yrs.	F.	4	+	–	P. & S.	Died.
5	7 yrs.	F.	4	–	–	P.A. & S.*	Recovered.
6	8 yrs.	M.	2	+	–	P. & S.	„
7	24 yrs.	M.	4	+	–	P. & S.	„
8	6 mos.	F.	4	–	–	P. & S.	„
9	5 mos.	M.	6	–	+	P. & S.	Died.

P. & S. = Treated with proseptasine and soluseptasine.
*P.A. & S. = „ „ prontosil album and soluseptasine.

The sulphanilamide derivatives employed were Proseptasine M. & B. (*p*-benzyl-aminobenzenesulphonamide) and Soluseptasine M. & B., a soluble sodium salt derivative. It is of interest that Whitby (1937) has reported that neither substance was active in meningococcal infections in mice. Through the independent action of a house officer Case 5 was treated with both Prontosil album (sulphanilamide) and soluseptasine, on admission.

TABLE II—SHOWING RESULTS OF CULTURE (C) AND PRESENCE OF MENINGOCOCCI IN STAINED FILMS (M)

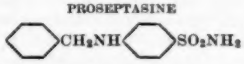
Case.	P.R.	1st day. C	1st day. M	2nd day. C	2nd day. M	3rd day. C	3rd day. M	4th day. C	4th day. M
1	+	..	M	..	M	+	M	–	–
2	+	..	M	..	..	–	M	..	–
3	+	+	M	–	M	..	M	..	–
4	+	+	M	–	M	..	–	..	–
5	..	–	M	–	M	..	M	..	–
6	+	–	M	–	–	..	–	..	–
7	+	+	M	–	–	..	–	..	–
8	..	–	M	–	M	..	–	..	–
9*	+	+	M	+	M	–	–	..	–

C+ = Culture positive. C– = Culture sterile.
M = Intracellular meningococci. M– = No organisms seen in film. P.R. = Precipitin reaction (Maegraith).[8]
* Relapse on 13th day with reappearance of meningococci: 13th day culture + meningococci present. 14th day culture sterile.

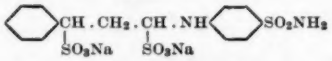
NATURE OF THE REMEDIES

It will be convenient here to refer to a few of the properties of proseptasine and soluseptasine. Their formulæ are :—

PROSEPTASINE



SOLUSEPTASINE



Proseptasine has a low solubility (1 in 20,000) in water; absorption from the alimentary tract is slow, but is facilitated by the fact that it is soluble in an excess of alkali. The low toxicity of the substance is presumably due to its low solubility and slow absorption.

Soluseptasine * is a crystalline salt easily soluble in water which breaks down very readily by hydrolysis in the presence of weak acids into free sulphanilamide and other products. It is eminently suitable for intravenous or intramuscular administration when the rapid action of the drug or its breakdown products is desired; it can also be administered by the intrathecal route without any ill effect.

Toxic effects.—In several of the series reported as treated with sulphanilamide [4 11 14] one or more cases have been reported as showing toxic manifestations and treatment has been temporarily suspended. In no case in the present series was any cyanosis observed clinically, nor was there evidence of any toxic effect in any case under treatment. On several occasions during intensive treatment examinations of the blood for methæmoglobin and sulphæmoglobin were carried out, but always with negative findings.

The claim that these products have a low toxicity is thus supported by the present series of cases.

* Dr. Maegraith examined the bacteriostatic effect of soluseptasine on the growth of meningococci in broth and normal cerebro-spinal fluid. Under the conditions of the experiment soluseptasine was bacteriostatic in dilutions of 1/100 to 1/1000.

points of major physiological interest established by work on the pathological side.

What would we know at present about such things as vitamins B_1, C, and D, insulin, thyroxine, cortin, liver and stomach active principles of pernicious anæmia, if experimental research had not been directed to the abnormal? Yet all these are physiological substances of the first order. Who can doubt that the physiology of the eye would be greatly extended by a knowledge of glaucoma, of the blood-vessels by a knowledge of the cause or causes of hyperpiesis, of the heart by a knowledge of the causes of auricular fibrillation, of the kidneys by a knowledge of albuminuria, and of the alimentary tract by a knowledge of gastric and duodenal ulcer, appendicitis, and colitis. It is hardly more unlikely that a physiological truth will come out of an experimental study of a pathological condition than that a fact of pathological significance will result from a purely physiological study. Every man working on a problem from either angle ought to be familiar with the other aspect. In recent years the Medical Research Council have endeavoured to diminish the gap between them by offering studentships to highly qualified young men for experimental pathology as well as for clinical investigation. The best qualification for such men is undoubtedly a good training in physiology, and physiologists in general would find a greater opportunity for essential discovery if they realised that a study of abnormality of function often offers the key to the elucidation of the normal process. Harvey himself did not confine his observations to one aspect of his problem. When necessary he called up evidence from every branch then known of physiology, pathology, and clinical medicine to support his argument.

We must continue to break down these artificial barriers between the medical sciences. It is true that each subject is now so big that any one man can only be a master of a small part of it; but expert assistance is so easily available that the investigator need only know sufficient about related problems to realise when to call for such assistance. Even the pure chemist and physicist now show great readiness to join in solving biological problems and workers in medical science can generally count on their help.

The Future

And now, what can be said of the future? Short of a catastrophic change which may upset or even destroy national life, the future of medical discovery is bright. Past experience shows that whatever problem concerning the body can be formulated by the human mind, a solution or partial solution of it is possible. There is no doubt that more and more knowledge giving control, both preventive and curative, of disease will be obtained. The limiting factor in this progress will always be the men of genius to make the first-class discoveries, but with the spread of educational opportunities to poorer people, more of these men may present themselves. Now that the State have put their hands to the plough, no unsurmountable difficulty may be expected in the direction of finance, if the situation is handled wisely.

The difficulty I foresee is not that of obtaining knowledge but of its application to human needs. Undoubtedly, as in the past, curative remedies as they appear will be generally taken up by the medical profession. Much of the new knowledge to be gained, however, may concern the prevention of disease and especially of chronic and degenerative diseases, including cardiovascular disorders, rheumatism, and pulmonary disease. The adoption and application of this knowledge will generally depend on the degree of education and wisdom of individuals. In some cases it will involve Government action. Without an enlightened public opinion the average person will do nothing to save himself and the State even less. If we are to continue as a successful democracy, dependent on public opinion for action, this must be guided suitably and quickly in problems of health as in other matters.

It seems to me that one of the most important functions of this Royal College in the future will be to lead public opinion and to guide State departments, especially in matters of preventive medicine. I have already explained why the Medical Research Council cannot advertise the value of the discoveries of its investigators, or continually interpret these discoveries to the public. Their job is solely to promote discovery, not to educate either the profession or the public. The Royal College of Physicans, on the other hand, is an ideal body for giving guidance and pressing for action, if such be needed, when scientific discovery has supplied new knowledge of importance to public health. Its independence and freedom from political relations and the high and honourable standing of its fellows would give its edicts an unassailable power. Consider one instance where the College could have played a decisive part. We are all familiar with the shocking neglect in this country to make use of available knowledge to prevent diphtheria by preventive inoculation. Whereas in some places, for instance in the province of Ontario, diphtheria has been practically eliminated, in this country there are more than 50,000 cases of the disease annually and 3000–4000 deaths. Surely this situation would not have arisen if there had been an organisation in the authoritative position of the College to give the lead and to indicate at an early stage the right action to be taken.

Other instances could be given and many others will arise in the future. It cannot be doubted that this great gap between medical discovery and the public requires serious attention.

I have now completed my task of giving a bird's-eye view of the modern movement of State support for medical research. It would be idle to pretend that the State or any other body could do much more in this matter than supply facilities to assist and guide the natural genius of the country in studying problems related to health and disease. Much remains to be done but, bearing in mind the limitations of any such enterprise, it will probably be agreed that the entry of the State into this field of discovery has been both stimulating and fruitful.

THE LANCET 100 YEARS AGO

October 20th, 1838, *p.* 138.

From a lecture by M. Magendie at the College of France.

. . . What sense, in truth, is there in applying the word *inflammation* to our organs? Do our tissues really take fire? I confess I know of no example of such a phenomenon. When the blood rushes to a part in abundance, a certain rise of temperature, no doubt, occasionally follows; but it only reaches a few degrees above the normal standard of the organ, and never exceeds that of the blood in the left ventricle. . . . Again: What on earth is the meaning of the word *irritation*? . . . How long, I should be glad to know, have our organs been proved susceptible of feeling passions—of becoming irritated—I had almost said of getting angry? The medical language of our schools is almost from one end to the other an incoherent metaphor. Figures and tropes have their merit, I allow; but their fit place is in a poem, or a romance, and the science we cultivate will, I trust, cease to be ranked with such performances.

MENINGOCOCCAL MENINGITIS TREATED WITH PROSEPTASINE AND SOLUSEPTASINE

RECORD OF NINE CASES

By R. H. Hannah, M.B. Edin.
HOUSE PHYSICIAN AT THE RADCLIFFE INFIRMARY, OXFORD; AND
F. G. Hobson, D.S.O., D.M. Oxon., F.R.C.P.
PHYSICIAN TO THE RADCLIFFE INFIRMARY

Since 1936 when Buttle and his co-workers demonstrated the protective and curative properties of sulphanilamide against meningococcal infections in mice,[2 3] reports have appeared of the successful clinical use of this drug.[1 4 5 6 11 14] The success achieved appears to have been greater than with any previous remedy, although the preparations employed and the methods of administration have varied.

Between Feb. 2nd and March 2nd, 1938, eight cases of meningococcal meningitis were admitted to the Radcliffe Infirmary and were treated with sulphanilamide derivatives. Of these seven survived and one died of hydrocephalus which developed in the course of treatment. On May 5th a further case was admitted which was similarly treated, but died. None of the patients was given serum.

Dr. B. G. Maegraith showed that in six of these cases the meningococcus belonged to Group I (old Types I and III); in two cases it was not typed. This Group I organism is the one prevalent in recent epidemics. The case admitted on May 5th was infected by a Group II organism (old Types II and IV). The age-groups of the patients were:—

20–30	..	..	1	5–10	..	..	2
10–20	..	..	1	0– 5	..	..	5

The results of treatment are briefly summarised in Table I, the cases being shown in their order of admission to hospital. Table II shows the results of culture and the examination of stained films.

TABLE I

No.	Age.	Sex.	Day of disease on admission to hospital.	Meningococcus group. I	Meningococcus group. II	Treatment.	Result.
1	18 yrs.	M.	2	+	–	P. & S.	Recovered.
2	2 yrs.2 mos.	M.	3	+	–	P. & S.	"
3	1 yr. 6 mos.	F.	3	+	–	P. & S.	"
4	3 yrs.	F.	4	+	–	P. & S.	Died.
5	7 yrs.	F.	4	–	–	P.A. & S.*	Recovered.
6	8 yrs.	M.	2	+	–	P. & S.	"
7	24 yrs.	M.	4	+	–	P. & S.	"
8	6 mos.	F.	4	–	–	P. & S.	"
9	5 mos.	M.	6	–	+	P. & S.	Died.

P. & S. = Treated with proseptasine and soluseptasine.
*P.A. & S. = " " prontosil album and soluseptasine.

The sulphanilamide derivatives employed were Proseptasine M. & B. (*p*-benzyl-aminobenzenesulphonamide) and Soluseptasine M. & B., a soluble sodium salt derivative. It is of interest that Whitby (1937) has reported that neither substance was active in meningococcal infections in mice. Through the independent action of a house officer Case 5 was treated with both Prontosil album (sulphanilamide) and soluseptasine, on admission.

TABLE II—SHOWING RESULTS OF CULTURE (C) AND PRESENCE OF MENINGOCOCCI IN STAINED FILMS (M)

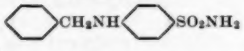
Case.	P.R.	1st day. C	1st day. M	2nd day. C	2nd day. M	3rd day. C	3rd day. M	4th day. C	4th day. M
1	+	..	M	..	M	+	M	–	–
2	+	..	M	..	..	–	M	..	–
3	+	+	M	–	M	..	M	..	–
4	+	+	M	–	M	..	–	..	–
5	..	–	M	–	M	..	M	..	–
6	+	–	M	–	–	..	–	..	–
7	+	+	M	–	–	..	–	..	–
8	..	–	M	–	M	..	–	..	–
9*	+	+	M	+	M	–	–	..	–

C + = Culture positive. C – = Culture sterile.
M = Intracellular meningococci. M – = No organisms seen in film. P.R. = Precipitin reaction (Maegraith).[8]
* Relapse on 13th day with reappearance of meningococci: 13th day culture + meningococci present. 14th day culture sterile.

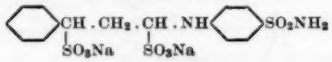
NATURE OF THE REMEDIES

It will be convenient here to refer to a few of the properties of proseptasine and soluseptasine. Their formulæ are:—

PROSEPTASINE



SOLUSEPTASINE



Proseptasine has a low solubility (1 in 20,000) in water; absorption from the alimentary tract is slow, but is facilitated by the fact that it is soluble in an excess of alkali. The low toxicity of the substance is presumably due to its low solubility and slow absorption.

Soluseptasine * is a crystalline salt easily soluble in water which breaks down very readily by hydrolysis in the presence of weak acids into free sulphanilamide and other products. It is eminently suitable for intravenous or intramuscular administration when the rapid action of the drug or its breakdown products is desired; it can also be administered by the intrathecal route without any ill effect.

Toxic effects.—In several of the series reported as treated with sulphanilamide [4 11 14] one or more cases have been reported as showing toxic manifestations and treatment has been temporarily suspended. In no case in the present series was any cyanosis observed clinically, nor was there evidence of any toxic effect in any case under treatment. On several occasions during intensive treatment examinations of the blood for methæmoglobin and sulphæmoglobin were carried out, but always with negative findings.

The claim that these products have a low toxicity is thus supported by the present series of cases.

* Dr. Maegraith examined the bacteriostatic effect of soluseptasine on the growth of meningococci in broth and normal cerebro-spinal fluid. Under the conditions of the experiment soluseptasine was bacteriostatic in dilutions of 1/100 to 1/1000.

ADMINISTRATION OF DOSAGE

Administration was by the following routes:—

1. Intrathecal (6 cases)
2. Intravenous (2 cases)
3. Intramuscular (6 cases)

} Soluseptasine.

4. Oral (9 cases) .. .. Proseptasine.

In all cases proseptasine was given by mouth as soon as the patient's condition permitted, and improvement was so rapid that this always proved possible within a few hours of admission. Further observations upon the route of administration are made later in the paper.

In determining the dosage we had in mind the following considerations:—

(*a*) The administration of a large dose within the first 24 hours of admission by such routes as were practicable, the soluble preparations being considered as the more important.

(*b*) That this large dose should be related to body-weight (Table II). The children and infants were weighed on admission and the weight of the adults estimated.

(*c*) The administration of the drugs at frequent regular intervals so as to maintain a steady concentration in the body fluids.

(*d*) The reduction of the dose as the clinical condition of the patient improved, the oral preparation being considered the more important for maintenance purposes.

In practice this plan was not consistently observed because in nearly every instance the clinical condition improved so rapidly that normal sleep was established and the patient was therefore left undisturbed. Hence in several cases the maximal dose planned was not actually administered, while in Case 9 it was exceeded in view of the long-standing infection.

In Table III the dose given in the first 24 hours from the actual time of the first treatment is shown. Administration was continued for a variable length of time—probably for an unnecessarily long period in some cases.

TABLE III

Case.	Age.	Weight.		Height.		Grammes in first 24 hours of combined drugs.	
						Maximum.*	Actual given.
		st. lb.	kg.	ft. in.			
8	6 mos.	1 3	8	2 1		2·0	2·5
9	5 mos.	1 4	8	2 2		2·0	7·5†
3	1 yr. 6 mos.	1 7	8·5	2 7		2·0	2·25
4	3 yrs.	2 2	14	3 3		3·5	2·75
2	2 yrs. 2 mos.	2 7	16	3 0		3·5	1·5‡
6	8 yrs.	3 6	22	4 2		5·5	6·0
5	7 yrs.	3 11	23	3 8		5·5	5·25
7	24 yrs.	8 3	52	5 6		13·0	12·5
1	18 yrs.	9 0	57	5 9		14·5	5·5‡

* This dose of the combined drugs was calculated on the basis of 0·25 g. per kg. body-weight, and was adopted as an arbitrary basis to secure a uniform practice.

† This case was treated with a relatively enormous dose in view of the fact that it was admitted on the 6th day of the disease, and because previous experience had clearly indicated the low toxicity of the preparations employed.

‡ The first two cases whose progress though satisfactory suggested the inadequacy of the initial dose.

An example of the plan of dosage in a given case of a child of 14 kg.—maximal dose 3·5 g.—would be:—

Intrathecal	0·5 g. (10 c.cm. 5% soluseptasine).
Intramuscular—morning	0·5 g. (" ").
evening	0·5 g. (" ").
By mouth	2·0 g. (proseptasine 0·5 g. six-hourly).
	3·5 g.

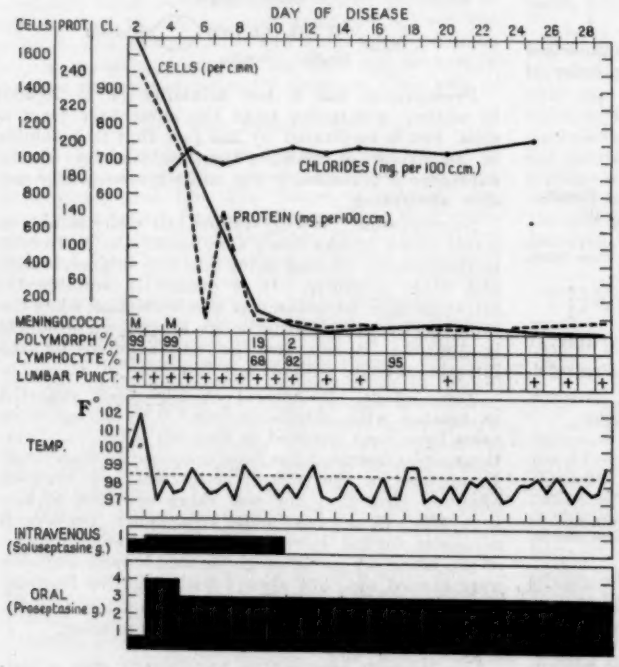


FIG. 1 (Case 1).—Aged 18. Chart showing the C.S.F. findings, temperature, and remedies administered (soluseptasine intravenously and proseptasine by mouth).

RESULTS

The accompanying charts show the treatment and changes in the cerebro-spinal fluid (C.S.F.) of Cases 1, 2, 3, 5, 6, and 9. The treatment and C.S.F. findings in Cases 7 and 8 were closely similar to those of the successfully treated cases in this group. In Case 4 the patient died of hydrocephalus which developed in the course of treatment.

CASE 1 (Fig. 1).—Aged 18. On admission the patient was delirious (second day of disease) with vomiting and incontinence; two days later he was rational and coöperative; five days later he was normal.

CASE 2 (Fig. 2).—Aged 2. On admission (third day of disease) the child showed extreme irritability; he had a discrete macular rash on the limbs, opisthotonus, and vomiting. For eight days there was but little change in his general condition but on the eleventh day there was marked improvement, medication was discontinued. On the fourteenth day the temperature rose and the child became restless. Proseptasine therapy was resumed with an immediate improvement which proceeded to an uneventful recovery.

CASE 3 (Fig. 3).—Aged 1¼. On admission (third day of disease) she was comatose and had extreme opisthotonus. There was projectile vomiting and a fading purpuric rash. Improvement was slow, the opisthotonus was much less severe by

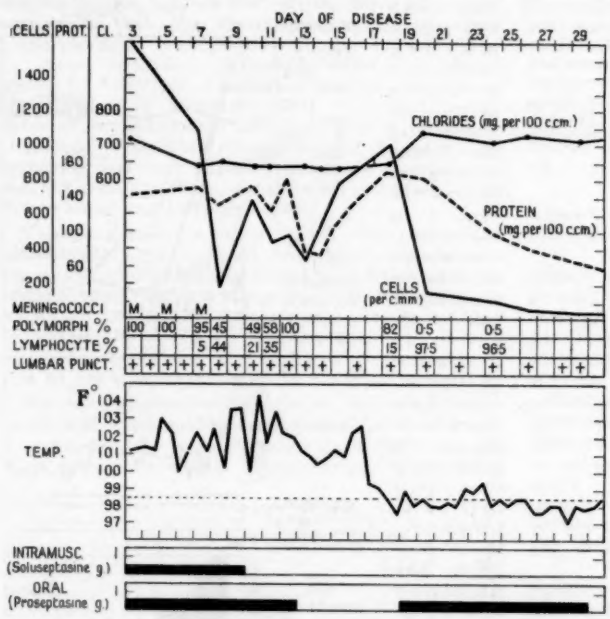


FIG. 2 (Case 2).—Aged 2. Treated with soluseptasine intramuscularly and proseptasine by mouth.

the sixth day and had disappeared by the ninth day. Recovery was uneventful.

CASE 4.—Aged 3. On admission (fourth day of disease) she showed marked opisthotonus; she vomited and was irritable. By the seventh day there was marked improvement and the child appeared to be recovering normally. During the second week opisthotonus returned, and there was occasional vomiting. During the third week the C.S.F. acquired a yellow tint, the protein content rising to a high figure, and it was recognised that a hydrocephalus was developing. The clinical condition steadily deteriorated in spite of intensive therapy, and the child died in the ninth week.

Abstract of post-mortem.—The body of a wasted child. Length 99 cm. Weight 8·8 kg. The thoracic and abdominal viscera presented no abnormality although there was a diminution in subcutaneous fat and the thymus gland was unusually small. The brain weighed 1111 g. The dura was not adherent and there was no excess of fluid in the subdural or subarachnoid space. There was a dense fibrinous exudate over the basilar cisterns, but nowhere else, and no organisms were cultivated from this material. After hardening, the brain was incised and an internal hydrocephalus involving the whole ventricular system was found. The ventricles contained clear yellow fluid and the ependymal lining was thickened. In the spinal canal the dura was adherent to the pia-arachnoid in the lumbar region and there were focal areas of fibrinous exudate scattered over the length of the cord. Apart from the adhesions in the lumbar region there were no loculations of fluid and the only pus that could be identified was on the anterior aspect of the filum terminale.

Histologically the surface of the brain and cord show a healing meningitis with fibroblastic, histiocytic, and plasma-cell infiltration, but no evidence of purulent material. Only in the region of the cauda equina is there any purulent material and this is quite localised. The ventricles show a chronic ependymitis but no signs of acute inflammation (A. H. T. R.-S.).

CASE 5 (Fig. 4).—When admitted on the fourth day of her illness this girl, aged 7, had intense headache with vomiting and neck rigidity. On the fourth day there was marked improvement, the only abnormality being a slight neck rigidity. Recovery was uneventful.

CASE 6 (Fig. 5).—A boy aged 8. He came in on the second day and was mentally confused. The neck was rigid; he was cyanosed, and the trunk and limbs were covered with purpuric spots varying in size from a pin's head to a sixpence. On the second day opisthotonus was greater and there was a right sixth-nerve palsy. By the fourth day the only abnormality was a slight neck rigidity. Recovery was uneventful.

CASE 7.—Aged 24. On admission, (fourth day of disease) he was comatose, with an internal squint, incontinence, and opisthotonus. On the third day he was rational and the opisthotonus had disappeared. By the fourth day all abnormal neurological signs had disappeared and recovery from this time was uneventful.

CASE 8.—Aged 6 months. On admission (fourth day of disease) there was opisthotonus and a divergent squint. By the fourth day the temperature had fallen and the neck rigidity and squint were less. Recovery followed.

CASE 9 (Fig. 6).—Aged 5 months. On admission (sixth day of disease) the fontanelle was bulging and opisthotonus was conspicuous. Improvement was con-

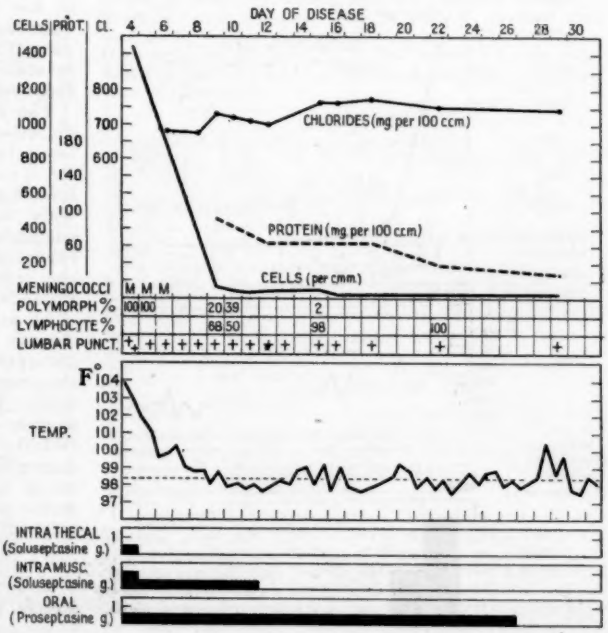


FIG. 3 (Case 3).—Aged 1¼. Soluseptasine by intrathecal and intramuscular injection; proseptasine by mouth.

tinuous till the tenth day after admission, but from this time vomiting occurred, at first occasionally and then with gradually increasing frequency. On the fourteenth day the C.S.F. was flooded with meningococci, and a change was made in treatment, prontosil album (sulphanilamide) and prontosil soluble being given in place of proseptasine and soluseptasine. The child died on the nineteenth day. Post-mortem examination was not permitted.

COMMENTARY

The pathology of meningococcal meningitis presents certain features which must be taken into account in considering any given therapeutic practice.

In this connexion the two fatal cases in the present series deserve special consideration. In Case 4 hydrocephalus was responsible for the fatal termination, meningococci having disappeared from the C.S.F. within two days of commencing treatment. The post-mortem examination showed that the inflammatory lesions of the meninges were healing satisfactorily. The probability of a hydrocephalus developing increases with the duration of the infection, and its actual development upon the localisation of the inflammatory reaction in particular sites. These two circumstances are beyond the clinician's control except in so far as treatment can be adjusted to secure the removal of the infecting agent in the shortest possible time.

In Case 9 it was unfortunate that no post-mortem examination was permitted, but the clinical picture was *not* that of a hydrocephalus; there was no bulging of the fontanelle, and the C.S.F. at no time showed the yellow discoloration of Froin's syndrome. In this case the reappearance of meningococci, despite intensive treatment, appeared to be due to the release of a localised collection in the posterior fossa. Such an inflammatory collection is also a pathological feature of the disease which is beyond the control of the clinician, except in so far as treatment can be adjusted to the removal of the infecting agent in the shortest possible time. It is difficult, however, to escape from the unhappy thought that success might have been achieved by an even more intensive therapy or the use of a preparation which could produce a high concentration of sulphanilamide or a similar bacteriostatic drug in the body fluids.

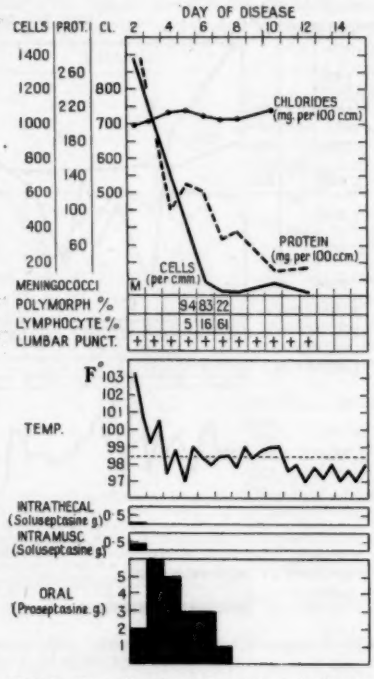


FIG. 5 (Case 6).—Aged 8. Soluseptasine by intrathecal and intramuscular injection; proseptasine by mouth.

In an attempt to trace the fate of the two drugs in the body fluids, estimations of the amount of diazotisable substance (presumably sulphanilamide) present in the C.S.F. were carried out at intervals in several cases in the course of treatment; in Case 9 these estimations were made daily.†

The interesting fact emerged that the amount of diazotisable substance in the C.S.F. was extremely low. In no case in the present series (nor in controls) did it exceed 2·0 mg. per 100 c.cm. and it was usually less than 1·0 mg. Soluseptasine, if present in the body fluids, is determined "in toto," since it is completely hydrolysed to give sulphanilamide and other (non-diazotisable) compounds. Proseptasine, on the other hand, cannot be determined directly by Proom's test.

At present no test is available to determine the amount of proseptasine in the body fluids in the low concentrations in which it will be found, although its presence unchanged can be demonstrated in the urine. Experimentally proseptasine has been shown to be an effective protective agent against streptococci (Whitby 1937) and in so far as there is very little demonstrable breakdown of proseptasine to sulphanilamide in the body it is probable that the drug is active per se, and not by virtue of its cleavage to sulphanilamide.

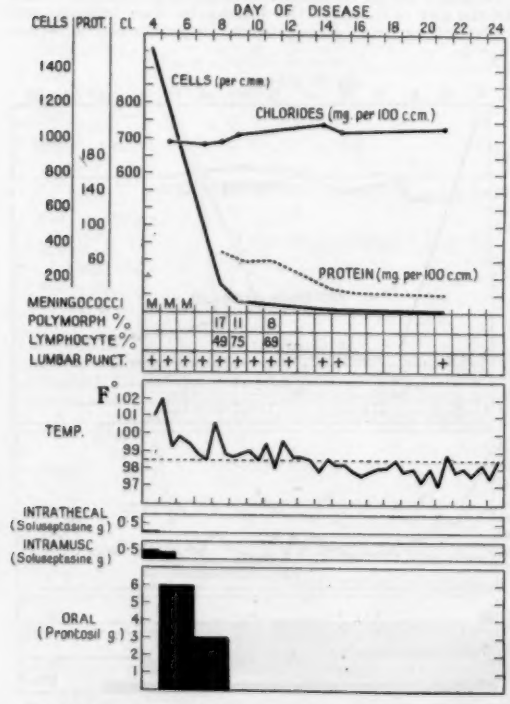


FIG. 4 (Case 5).—Aged 7. Soluseptasine by intrathecal and intramuscular injection; prontosil album (sulphanilamide) by mouth.

DISCUSSION

However divided opinions may be as to the correct dosage and the best method of administration of

† By Mr. J. N. Ashley, D.Sc., of the research laboratories of May and Baker using the method described by Proom (*Lancet*, 1938, **1**, 260).

sulphanilamide and its derivatives, there is general agreement that the therapeutic action of these preparations is incomparably greater in vivo than in vitro. In the published series of clinical trials [1 4 5 6 11 14] the dosage has been as variable as the method of administration. In general large doses of sulphanilamide have been given; American clinicians [11 14] and their co-workers [7 9 10 12] in particular favouring a dosage adjusted to secure a concentration of 1 in 10,000 (10 mg. per 100 c.cm.) sulphanilamide in the blood and body fluids.

The considerations upon which their technique of administration is based have been: (*a*) that a concentration of sulphanilamide 1 in 10,000 is bacteriostatic in vitro; (*b*) that the concentration of sulphanilamide in the C.S.F. approximates closely to that found in the blood [10]; and (*c*) that the dosage employed should aim at securing a concentration of 1 in 10,000 of sulphanilamide in the body fluids.

No comparable concentration of diazotisable compound (presumably sulphanilamide) was found in any case in the present series while under treatment with proseptasine and soluseptasine. That these observations were correct is supported (1) by the results in Case 9, where a change of treatment was made to sulphanilamide (prontosil album orally) and prontosil soluble intramuscularly in the terminal stages of the illness, (2) by subsidiary examinations of the blood and C.S.F. of patients receiving comparable dosage of proseptasine and soluseptasine in the course of the treatment of infections other than meningococcal meningitis.

The low concentration of diazotisable compound found in our cases came as a surprise and was indeed contrary to expectation. The interesting fact remains that a satisfactory therapeutic action was obtained with a concentration of diazotisable substance in the blood and C.S.F. approximately one-tenth of that considered as desirable by other clinicians, who have adjusted their administration of sulphanilamide to a theoretical standard based upon in-vitro experiments.

The present tendency for the dosage of sulphanilamide to be pushed to the limit of tolerance is in itself an indication that a lower dosage is less effective.

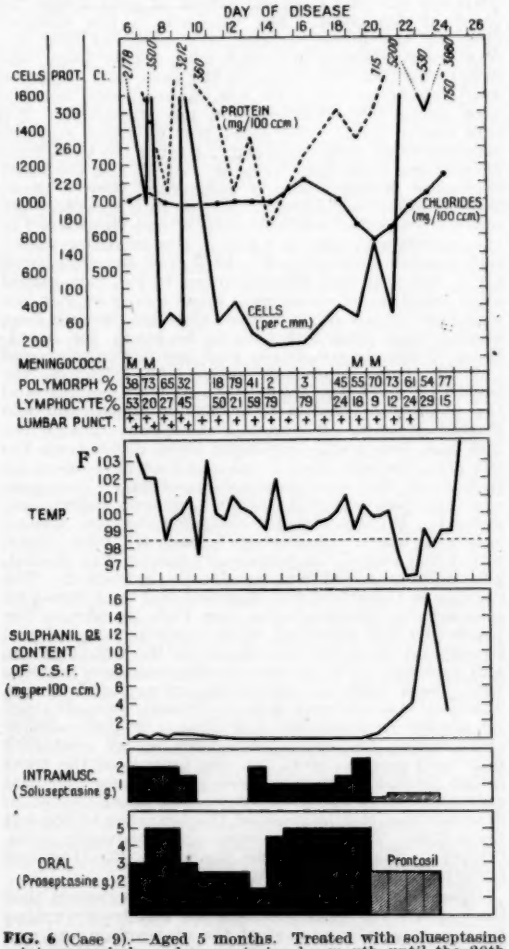


FIG. 6 (Case 9).—Aged 5 months. Treated with soluseptasine intramuscularly and proseptasine by mouth until the 20th day of the illness, after which prontosil soluble was given by intramuscular injection and prontosil album by mouth. This chart includes estimates of the sulphanilamide content of the C.S.F.

SUMMARY

1. Nine cases of meningococcal meningitis were treated with proseptasine and soluseptasine, with two deaths.

2. In no case was there any considerable amount of diazotisable substance present in the body fluids in the course of treatment.

3. In no case was any toxic manifestation evident in the course of treatment.

4. The results of treatment are contrary to expectation as judged by the results obtained by Whitby (1937) in experimental meningococcal infections in mice.

Our thanks are due to Dr. B. G. Maegraith and Dr. R. McMenemey, who were responsible for the bacteriological investigations and the very large number of C.S.F. examinations; to Mr. A. J. Ewins, D.Sc., of May and Baker, for the chemical investigations of specimens; to Drs. E. and P. Mallam and Dr. A. G. Gibson for permission to use cases under their control; to Dr. A. H. T. Robb-Smith for his post-mortem reports; and to Mrs. R. F. Dodd for preparation of the charts.

REFERENCES

1. Banks, H. S. (1938) *Lancet*, July 2nd, p. 7.
2. Buttle, G. A. H., Gray, W. H., and Stephenson, D. (1936) *Ibid*, **1**, 1286.
3. — et al. (1937) *Ibid*, **1**, 681.
4. Crawford, T., and Fleming, G. B. (1938) *Ibid*, **1**, 987.
5. Eldahl, A. (1938) *Ibid*, p. 712.
6. Jacob, F. H. (1938) *Brit. med. J.* **1**, 887.
7. Long, P. H., and Bliss, E. A. (1937) *Ann. intern. Med.* **2**, 575.
8. Maegraith, B. G. (1935) *Lancet*, **1**, 545.
9. Marshall, E. K., et al. (1937) *J. Pharmacol.* **61**, 196.
10. Marshall, F. D., et al. (1937) *J. Amer. med. Ass.* **108**, 953.
11. Schwentker, F. F. (1937) *Ibid*, p. 1407.
12. Weinberg, M. H., Mellon, R. R., and Shinn, L. E. (1937) *Ibid*, p. 1948.
13. Whitby, L. E. H. (1937) *Lancet*, **1**, 1517.
14. Willien, L. J. (1938) *J. Amer. med. Ass.* **110**, 630.

LONDON HOSPITAL.—The subject for the 1941 award of the Hutchinson triennial essay prize is bronchiectasis. The value of the prize is £60 and it is open to students of the hospital for ten years from the date of their registration as students.

ALVARENGA PRIZE.—The Alvarenga do Piauhy (Brazil) prize for 1939, which is worth about $200, will be awarded by the College of Physicians of Philadelphia in July for the best memorial or the best unpublished essay on any branch of medicine. The committee will also consider recent publications brought to its attention prior to May 1st, 1939. Further information may be had from the Alvarenga Prize Committee, 19, South Twenty-second-street, Philadelphia, U.S.A.

SLOWLY FATAL PULMONARY EMBOLISM

By Robin Pilcher, M.S. Lond., F.R.C.S.

PROFESSOR OF SURGERY IN THE UNIVERSITY OF LONDON AT UNIVERSITY COLLEGE HOSPITAL

Fatal pulmonary embolism is commonly regarded as a sudden and brief event in which death takes place within a few minutes. My purpose is to describe a form in which death comes more slowly and to suggest that such cases should be treated by operation. I am aware that this slowly fatal form has been adequately described by others, but I do not think its existence is widely known. Operation for the rapidly fatal type can only succeed in exceptionally favourable circumstances with a complex organisation to meet the desperate emergency. The indication for operation is uncertain, since patients sometimes rally quickly after the most profound collapse. But for the slowly fatal type no such complex organisation is necessary and a deliberate operation is possible and should I believe be attempted more often. Moreover, as I hope to show, there comes a time in these cases when death without interference is inevitable, and an extremely hazardous operation may reasonably be undertaken.

The onset of pulmonary embolism in the slowly fatal form does not necessarily differ from that in the rapidly fatal. It may be as dramatic with sudden profound collapse or it may be insidious and painless. The essential point is that the embolism does not kill the patient rapidly and there soon develops the picture of congestive heart failure. The diagnostic problem with which one is faced is the cause of acute heart failure of sudden onset. If the onset is dramatic with precordial pain and distress the probable cause is coronary thrombosis or pulmonary embolism. If the onset is insidious other possible causes of rapid heart failure such as fulminating toxæmia must be considered. Diagnosis may be very difficult, but the younger and healthier the patient the more likely is pulmonary embolism to be the cause. Progressive enlargement of the heart follows any case of acute heart failure, but if the enlargement is predominantly right-sided it should suggest pulmonary embolism. An electrocardiogram is of value, as characteristic changes are found in both coronary thrombosis and pulmonary embolism. Barnes (1937) attaches great importance to this examination and there should be ample time to carry it out. Since patients who develop pulmonary embolism are often stout, X ray examination may be of value in determining the nature and degree of the cardiac enlargement. Evidence of peripheral thrombosis is often absent and is of little value in establishing the differential diagnosis. If, however, thrombosis is found before the onset of cardiac failure it is in favour of embolism.

The cause of death in rapidly fatal pulmonary embolism is not clear, but is probably not purely mechanical, since at autopsy the degree of obstruction found is not always incompatible with life. In the slowly fatal type two factors operate. First, from the moment of onset the heart has to work against the mechanical obstruction of the clot. Secondly, once the clot has lodged in the main vessel or its main branches secondary thrombosis forms around it and distal to it. As this secondary thrombosis extends the obstruction increases and the chances of the clot being dislodged or disintegrated decrease. At the same time the heart is weakening and losing its power to force on the clot or break it up. There must come a time, therefore, in every such case when natural recovery is no longer possible. The problem for the surgeon is to determine that moment and then operate at once while the heart still has some power left. In the cases which I have operated on I am now of opinion that I waited too long, withholding operation until the heart was so exhausted as to be incapable of recovery when the obstruction was removed. The following are notes of four cases, in two of which operation was attempted without success.

Case 1.—A moderately stout woman of 52 developed pulmonary embolism on the 17th day after a radical mastectomy. There had been some infection of the wound and on the 11th day she had retention of urine. There was no evidence of thrombosis in the leg veins. At 11.30 P.M. on the 17th day after operation she had a sudden attack of pain across the front of the chest which lasted about ten minutes, passing off into a feeling of tightness. The pulse was rapid and weak, the colour pale, and the skin cold and clammy. Fifteen minutes after onset her condition improved rapidly and caused no further anxiety until the morning. At 8.45 A.M. on the 18th day she had a second attack of pain across the front of the chest. She was seen a few minutes later by the house surgeon, who observed that she was breathless and cyanosed, with a poor pulse, the rate being 160. The veins in the neck were engorged and pulsating. At 9.15 A.M. when I saw her she was apparently shocked but not cyanosed. She was not in pain. The heart was enlarged and the cervical veins were engorged. During the next hour there was a little improvement. At 11 A.M. the heart was more enlarged and a radiogram showed great bulging of its right border. At this time embolectomy was contemplated and the patient was transferred to the operating theatre at 1 P.M. Her condition varied but steadily deteriorated. At 3 P.M. she clamoured for a bed-pan and seemed more feeble, but rallied after injection of coramine. From 3.30–4.30 P.M. she was kept in an oxygen tent, the skin having been anæsthetised with Novocain to be ready for operation. While she was in the tent her colour improved but the pulse remained feeble. At 4.30 P.M. the breathing suddenly changed to a deep gasping and the pulse was reduced to a flicker. Operation was started at once. Through a cross-bow incision the 2nd and 3rd costal cartilages were divided on the left side, the ribs turned out and fractured about an inch from the costochondral junctions. The pericardium was exposed without pleural injury and opened. It was tightly distended by the greatly enlarged heart. A rubber tourniquet was passed round the conus, the pulmonary artery was opened, and a large coiled clot was easily extracted. The incision in the artery was clamped and the tourniquet released 3½ minutes after the first incision. The heart was not pulsating when exposed and it failed to respond to saline injections into the left ventricle, and massage. The incision in the pulmonary artery was closed with a continuous suture of fine silk. The clot was cultured and no growth was obtained by aerobic or anaerobic methods. At post-mortem examination the main pulmonary artery contained only post-mortem clot. In the branch of the right artery to the lower lobe were three pieces of coiled ante-mortem clot. There were also small pieces of ante-mortem clot in some of the branches to the left lower lobe. The arterial suture was apparently satisfactory. Thrombosis was found in the inguinal tributaries of the right femoral vein.

Operation was delayed until it seemed certain that the patient was dying. The heart had been working for some eight hours against the obstruction and was by this time past recovery. The operation was apparently adequate to release obstruction and an earlier intervention might have saved the patient's life.

CASE 2.—A very fat woman of 64 developed pulmonary embolism on the 28th day after an emergency operation for strangulated umbilical hernia. At operation the intestines in and near the sac were matted together by adhesions. There was no wound infection but considerable post-operative distension. About the 10th day the temperature and pulse began to rise a little and on the 14th day signs suggesting consolidation were found at the left base. The legs were examined for signs of thrombosis but none was found. A radiogram of the chest showed a small effusion at the left base. The raised temperature (not exceeding 101° F.) and pulse-rate continued, and the signs in the chest altered little during the next ten days. On the 25th day she was found to have a left femoral thrombosis and about this time her general condition began to deteriorate. There was still some abdominal distension which was, however, relieved by enemata. On the 28th day she became rapidly worse, but without any dramatic events. She was noticed by the ward sister to be cold, pale, sweating, and dyspnœic. She did not cry out or at any time complain of pain, but she gradually sank and died 36 hours after the change was noted. A diagnosis of pulmonary embolism was made, but owing to the poor condition of the patient before its onset operation was not considered worth attempting.

At post-mortem examination the right pulmonary artery was filled with ante-mortem clot. Some of this was embolic, but added to it was much propogation thrombus. The lower lobe of the left lung was pneumonic. The left femoral vein was filled with ante-mortem clot. This is an example of pulmonary embolism of insidious onset. Doubtless the pre-existing consolidation in the left lung contributed to the fatal issue, but the condition of the right pulmonary artery illustrated well the progressive nature of the obstruction caused by emboli.

CASE 3.—A well-nourished woman of 38 developed pulmonary embolism four days after abdominal hysterotomy for the termination of pregnancy. Somewhere about midnight on the 3rd night after operation, having been restless and unable to sleep, she began to have pain in the chest and to feel breathless. She was not greatly distressed and did not complain until the morning, when she was seen by the house surgeon who examined her chest and found nothing abnormal. Her pulse was fast, the respiration-rate 32 per minute, and the temperature not raised. She was a little cyanosed but the cervical veins were not congested. She complained of a continuous pain across the front of the chest made worse by inspiration. She was given sedatives and oxygen by nasal catheter. Her condition remained much the same during the morning, and at 2 P.M. when I saw her she was having nasal oxygen and said it gave her great relief. She was intensely cyanosed and her extremities were cold. There was 4–5 cm. of venous congestion in the neck, the veins pulsating. The rate of the pulse was 132, but it was regular and of fair volume. When asked to describe her pain the patient said she could not. On one occasion she said she had a sharp sensation in the front of the chest, but at other times she said she felt as if she were "going." It was apparent that she experienced from time to time a brief sensation localised to the front of the chest which clearly frightened her. But although she said that breathing made it worse it was noticed that at the onset of each attack respiration increased in depth as in the Cheyne-Stokes type.

The apex-beat was difficult to feel but was near the anterior axillary line; the right border of cardiac dullness was in the midline. Respiratory movement was diminished on the left side and the air entry poor. The heart sounds were weak and a strictly localised systolic murmur was heard over the inner end of the second left intercostal space. This murmur was high pitched and varied in intensity. It was twice observed to disappear for a few moments during the attacks of distress described above.

I saw the patient several times during the afternoon and her condition did not change appreciably. The murmur persisted and the attacks of distress with hyperpnœa continued. In some of them the patient uttered a faint cry which was provoked by fright rather than pain. No increase in the cardiac enlargement was detected clinically. A diagnosis of pulmonary embolism was made and the murmur suggested a clot riding the bifurcation. The absence of demonstrable cardiac enlargement to the right was attributed to atelectasis of the left lower lobe with displacement of the heart. The legs were examined and no sign of thrombosis was found. As the patient appeared to be no worse after a few hours' observation it was thought that she had a chance of recovery and should not be operated on. A radiogram of the chest was taken in the late afternoon and showed great enlargement of the heart to the right and the left. At 7.30 P.M. the patient died. Her end was not observed. She was found dead, having been seen a few minutes before not obviously worse than in the afternoon.

At post-mortem examination a large coiled ante-mortem clot with much propogation thrombus was found at the bifurcation of the pulmonary artery. There was no sign of fragmentation of the embolus. There was thrombosis in the right femoral vein. The lower lobe of the left lung was collapsed. Looking back on this case I think that a fatal issue should have been foreseen when the riding clot had been present some hours. At some time during the afternoon embolectomy should have been attempted. It was clear that the clot could have been easily and completely removed.

CASE 4.—A man of 57 was admitted as a medical emergency with a diagnosis of coronary thrombosis. There was a history of phlebitis in the left leg of three months' duration. Three days before admission he had an attack of pain on the left side of the chest, the description of which suggested a pleural origin. On the day of admission at 8 A.M., while getting out of bed, he was seized with severe precordial pain and collapsed. His wife said that he had been very pale. I saw him first at 7 P.M. when he was pale and slightly cyanosed and very breathless. There was venous congestion in the neck and the heart was enlarged. The heart sounds were feeble and no murmur was heard. He was having oxygen by nasal catheter without relief of the dyspnœa. To decide between coronary thrombosis and pulmonary embolism was difficult, but the history seemed to favour the latter. He was thought to have a chance of recovery and embolectomy was not considered justifiable at this time. At 11 P.M., however, he was much worse and obviously dying of heart failure. He was therefore transferred to the theatre and operation was started deliberately under local anæsthesia. Through a cross-bow incision the 2nd and 3rd left costal cartilages were divided and the ribs turned outwards and fractured. The pericardium was exposed without pleural injury and was found tightly distended by the enlarged heart. The pericardium was opened and a rubber tourniquet passed round the conus. Up to this point the heart was beating and respiration was laboured. As soon as traction was made on the tourniquet the heart stopped, but respiration continued for a short time becoming slow and gasping. The pulmonary artery was incised, several clots removed from its main branches, but no riding clot found. The arterial incision was controlled with a clamp and the tourniquet relieved. The heart could not be started by massage or injections of saline and adrenaline. The arterial incision was closed with a lateral ligature but was too close to the valves, one of which was damaged. The first part of the operation was done without haste; the tourniquet was on for less than one minute.

The clot removed was cultured and no growth was obtained by aerobic or anaerobic methods. At autopsy there were many small pieces of ante-mortem clot in the branches of the pulmonary artery in both

lungs. The embolus had evidently broken up. The ligature of the artery was apparently satisfactory and the lumen easily admitted a large finger. There was a left femoral thrombosis. As in Case 1 operation was deferred too long, but the fragmentation of the clot showed that the chances of successful removal would have been less than in the other case. The uncertainty of diagnosis made one more hesitant to operate until the patient's condition seemed hopeless. An electrocardiogram should be helpful in a case of this sort.

DISCUSSION

It is not my purpose to detail the operative treatment, but certain points that have arisen in my experience may be of interest. Clearly, if a deliberate operation on a still conscious patient is planned an anæsthetic is necessary, and for this purpose local infiltration with novocain seems most suitable. If operation is undertaken early as I have suggested there is no need for haste in the exposure of the artery, and pleural injuries should be easily avoided. That the arrest of the circulation for the actual exploration of the artery must be brief is obvious, and the possibility of controlling the pulmonary artery without constricting the aorta is being studied. The application of the tourniquet in Case 4 at once arrested the heart's action, and the tension on the conus required to control both vessels must cause considerable shock. The temporary control of the incision in the artery must be as simple as possible and the use of large lateral clamps is open to two objections—that they occlude a large part of the lumen of the vessel and also that they impede free movement of the heart and access to it for stimulation. The hole in the vessel can be adequately secured with Duval's lung forceps and can be sutured while thus controlled. Personally I doubt whether suturing of the vessel is necessary and have found a lateral ligature can be made watertight with little narrowing of the vessel lumen. I have tried this device many times in post-mortem studies and believe it would be satisfactory in a living patient. In both patients submitted to embolectomy attempts to start the heart failed. For this purpose it has been suggested to me that the most efficient stimulus would be the faradic current, but I have not yet tried this method.

There are many aspects of the treatment of pulmonary embolism which I have not touched upon, as I only wished to describe the slowly fatal type and suggest operation for its relief. Antispasmodic and anticoagulant drugs are being used with reported good results, both as a prophylactic and to treat the established condition, and it is likely that in the future pulmonary embolism will be largely prevented. Attempts at prevention at present are concentrated on post-operative accidents, though as I have shown elsewhere (1937) pulmonary embolism is not purely a surgical problem but arises fairly often in medical cases and even occasionally in apparently healthy people. Case 4 is a good example of a medical case, the patient not even being confined to bed.

If operation is considered the proper treatment for embolism that is causing heart failure, it is essential that it should be undertaken reasonably early. I would suggest that if the diagnosis is clear and no improvement is apparent after two to three hours, embolectomy should be attempted, preparation having been made for it in the interval.

SUMMARY

Four patients developed pulmonary embolism which was slowly fatal, the cause of death being progressive heart failure of acute onset. In two of the patients embolectomy was attempted, but was left too late. Embolectomy is suggested as the proper treatment in such cases where the patient does not show improvement. It should be done two or three hours after the onset of the illness.

REFERENCES

Barnes, A. R. (1937) *J. Amer. med. Ass.* **109**, 1347.
Pilcher, Robin (1937) *Brit. J. Surg.* **25**, 42.

MENINGO-ENCEPHALITIS COMPLICATING HERPES ZOSTER

By J. H. Biggart, M.D., D.Sc. Belf.
PROFESSOR OF PATHOLOGY, QUEEN'S UNIVERSITY, BELFAST; AND
J. A. Fisher, M.D., B.Sc. Belf.
RIDDEL DEMONSTRATOR AND CLINICAL ASSISTANT IN THE DEPARTMENT OF PATHOLOGY

(*From the Institute of Pathology of Queen's University and Royal Victoria Hospital, Belfast*)

As is well recognised, the skin lesions of herpes zoster are accompanied by inflammatory changes in the dorsal root ganglia, and not uncommonly by some increase in cells in the cerebro-spinal fluid, indicative of the spread of the infection to the meninges of the spinal cord. The higher levels of the central nervous system, however, are rarely involved, and the following case in which autopsy was performed seems of some general interest.

CASE RECORD

A man, aged 63, was admitted to the Royal Victoria Hospital on Feb. 8th, 1938. His illness had begun five weeks previously with a typical herpes zoster in the distribution of the right ilio-inguinal nerve. On admission he was semi-comatose and very restless but was able to respond to commands.

He was of average stature and nutrition. His complexion was ruddy, and there were no signs of jaundice or anæmia. Over the right buttock and front of the thigh were numerous pigmented areas representing the healing and healed lesions of the herpes zoster. His temperature was 99° F., his pulse was regular, and the rate 92 per minute. No abnormality was found in the cardiovascular system and no alteration in the sounds or size of the heart. Apart from a few rhonchi the lungs were thought to be normal. The tongue was heavily furred and there seemed to be a little generalised tenderness of the abdomen, but the liver and spleen were not palpable. The urine was acid and of a specific gravity of 1028, but contained neither albumin nor sugar. The pupils were equal and reacted to light and on accommodation, and the various reflexes were normal. The muscles seemed weak.

In hospital the patient became more drowsy and finally delirious, and developed incontinence of both urine and fæces. On the third day lumbar puncture was performed and clear fluid under increased pressure was obtained. This was found to contain 0·04 per cent. of protein, a trace of globulin, and 20 cells per c.mm. The Wassermann reaction was negative. On the fourth day the patient was still stuporose and developed signs of respiratory embarrassment. He died on the fifth day with symptoms of congestion and œdema of the lungs. The clinical diagnosis was encephalitis with terminal pulmonary œdema.

PATHOLOGICAL FINDINGS

At autopsy the findings were largely negative. The lungs were congested and œdematous, but the other viscera were normal or showed only a slight degree of

senile atrophy. The brain and spinal cord, with the dorsal root ganglia, were removed and fixed intact, the only noticeable feature being injection of the meninges. Small blocks of the fresh brain were placed in 50 per cent. glycerin. On section of the fixed tissues nothing abnormal could be detected. The basal vessels and intracerebral vessels showed little or no atheroma. There was no dilatation of the ventricular system and no gross hæmorrhage or softening was found on multiple sections of the brain.

Sections of the heart, liver, pancreas, adrenals, kidneys, and intestine show no pathological lesions. There is a slight terminal bronchiolitis in the lungs, and a generalised massive œdema. The spleen shows an increase in mononuclear cells, some of which are large mononuclears, whilst others closely resemble plasma cells.

Spinal cord—Sections of various segments in the lumbar, thoracic, and cervical regions were examined. There is a slight mononuclear infiltration of the subarachnoid space, most evident over the posterior aspect of the cord, but also seen in occasional sections in the anterior fissure. In the nervous substance there is a perivascular infiltration with lymphocytes in numerous segments. This inflammatory reaction is confined to the dorsal half of the cord, the most anterior vessel affected lying at the root of the posterior horn. The affected vessels lie both in the grey matter of the posterior horns and the white matter of the posterior columns. Accompanying this perivascular infiltration is a diffuse interstitial increase in cells in the posterior horns. This increase is partly due to mononuclear inflammatory cells and partly to proliferation of the neuroglia. There is no perivascular demyelinisation.

The nerve-cells of the posterior horns show various degrees of chromatolysis, a few appearing hyaline. In the anterior horns no inflammatory infiltration was found, but many of the nerve-cells show complete absence of Nissl substance, whilst the nucleus and nucleolus are swollen, and the cytoplasm has a homogeneous hyaline appearance. Some of these cells, when stained by Mann's eosin-methyl blue, or eosin-pyrrol blue, tend to stain a homogeneous red instead of the usual granular blue colour. No inclusion bodies were demonstrated.

Dorsal ganglia.—Several of these were examined from the lumbar region. They show a lymphocytic infiltration which is most obvious in the vicinity of the blood-vessels. The nerve-cells in the affected ganglia show chromatolysis. While there is no actual demyelinisation in the posterior nerve-roots many of the myelin sheaths appear swollen and slightly beaded. Dorsal root ganglia from other levels of the cord occasionally show a few infiltrating lymphocytes, but the signs of inflammation are much less.

Brain.—In the brain perivascular lymphocytic infiltrations are found in the medulla, the subcortical cerebellar nuclei, the thalamus, and hypothalamus. The substantia nigra is slightly if at all involved. There is not much inflammatory infiltration in the pons, and there appears to be no predilection for the inflammatory process to affect the peri-aqueductal grey matter. In the areas involved the infiltration is rather less extensive than in the spinal cord, and there is a greater tendency for the concomitant occurrence of numerous small perivascular hæmorrhages. Scattered nerve-cells at various levels in the mid-brain show the hyaline change seen in the anterior horn cells.

In the cortex there are various degrees of chromatolysis. No perivascular hæmorrhages or infiltrations were found in various blocks examined—frontal, occipital, and motor areas—except in the parietal region. Here perivascular cuffing in the deeper cortical laminæ, while never intense, was not uncommon.

COMMENTARY

From the clinical point of view the most prominent feature of herpes zoster is the vesicles, and pathological examination shows that this is associated with an inflammation of the dorsal root ganglia of the sensory nerves supplying the area of affected skin. From here the inflammation spreads not uncommonly to the posterior horns of the spinal cord, and lymphocytosis is almost constantly found in the cerebro-spinal fluid. In so far as the present case shows these changes—the ganglionitis, the lymphocytosis of the cerebro-spinal fluid, and the meningo-myelitis with its distribution in the posterior half of the cord—it differs in no way from the changes found in cases of herpes zoster uncomplicated by any encephalitis or marked symptoms of involvement of the central nervous system. In other words, the agent of herpes zoster always exhibits some degree of neurotropism and it is somewhat surprising that the lesions found are so often confined to the dorsal ganglia and spinal cord and that encephalitis is not a more commonly noted complication.

Netter in 1930 collected reports of 16 cases, but concluded that all of them were probably examples of epidemic encephalitis of von Economo in which the cerebral infection predisposed to the involvement of the sensory neurone by the zoster agent. In Netter's opinion, therefore, the encephalitis is the predisposing cause, and acts in much the same way as a fractured spine or carbon monoxide poisoning, in preparing the tissues for the zoster infection. Sometimes, however, the skin manifestations of the zoster have been present before the appearance of the symptoms of encephalitis. Thus Thalhimer's (1924) patient became drowsy four weeks after the appearance of the skin lesions, and the encephalitis ended fatally six weeks after the onset of the herpes. In Schiff and Brain's (1930) case drowsiness was noticed four days after the onset of the rash, while in the present case the drowsiness became a notable symptom about five weeks after the onset of the illness.

There still remains the possibility that the encephalitis is a coincidental infection, and until the infective agent is clearly demonstrated, this possibility cannot be completely disregarded. The histological findings in the present case, however, tend to support the possibility of the occurrence of a zoster encephalitis. In it we find that the inflammatory changes in the dorsal root ganglia and spinal cord are those commonly accepted as zoster lesions. The lesions in the medulla and mid-brain appear histologically to be merely an upward extension of the same lesion as is found in the cord, differing neither in intensity nor in the character of the reacting cells. If this suggestion be accepted the inflammatory infiltrations in the parietal region are analogous to the changes occasionally seen in the motor cortex in poliomyelitis, and this suggests that, like the virus of poliomyelitis, the herpes zoster infective agent may utilise preformed nervous pathways in its spread throughout the nervous tissues.

The changes in the anterior horn cells may constitute the anatomical basis for the muscular weakness noted on clinical examination, and similar, more localised changes may be responsible for the pareses occasionally seen in this infection.

SUMMARY

1. A man of 63 died of encephalitis about six weeks after the onset of typical herpes zoster.

2. Histological examination showed a dorsal-root ganglionitis, posterior myelitis, as well as encephalitis.

3. It is suggested that the encephalitis was caused by the infective agent of herpes zoster.

(*Continued at foot of next page*)

SEVERE INITIAL DEAFNESS AS A SIGN OF ACUTE MASTOIDITIS

BY N. ASHERSON, M.B. Lond., F.R.C.S.

ASSISTANT SURGEON TO THE CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL; SURGEON FOR DISEASES OF THE EAR, NOSE, AND THROAT TO THE QUEEN'S HOSPITAL FOR CHILDREN

AMONG the symptoms and signs upon which a diagnosis of acute mastoiditis is usually made, deafness is not one upon which much stress is placed. Yet severe deafness at the onset of an acute suppurative infection of the ear may be the predominating or even the only symptom or sign of the presence of acute and advanced mastoid infection. The importance of remembering this possibility is obvious since early diagnosis and drainage of the mastoid mostly results in complete restoration of hearing.

The cases recorded below are of interest in this connexion. Recognition of the sign led to operation in Case 1 on the fourth day of the discharge and in Case 2 on the third day, with complete subsequent restoration of normal hearing. Failure to appreciate the significance of the severe deafness delayed the operation in Case 3, with the result that although the ear healed up satisfactorily the hearing remained permanently impaired, though there was some improvement compared with the severe loss prior to the operation.

The symptomatology of this type of mastoiditis is characteristic. The patient develops an acute otitis media, which on inspection of the tympanic membrane is revealed to be a *suppurative* otitis. Coinciding with or following the attack or, as in Case 2, preceding it by some days, severe deafness is noticed. Where one ear is involved (Case 2) this deafness may escape notice. Where the other ear is already deaf (Case 1), or where the condition is bilateral, the deafness is so disabling that the patient complains only of this symptom. A loud shout may be heard only at 3–6 in. from the ear. This degree of deafness was present in all three cases, the patient being completely deaf in the affected ear. In such cases the Rinne test is negative, and bone conduction is not diminished. Inflation of the ear some days after myringotomy has no effect on the hearing.

In all three cases the mastoid operation revealed extensive mastoid disease, with a large collection of pus at the tip of the mastoid. The observation of this apical collection of pus gains significance from the fact that the operation notes of each case emphasise the site of the pus, the rest of the mastoid being less extensively diseased. The recovery of hearing after early drainage is gradual. In Case 1 it was two weeks before much recovery was noticeable, in spite of the fact that the middle ear had healed by then.

CASE REPORTS

CASE 1.—A woman aged 33, who had been completely deaf in the left ear for years, was seen on Oct. 9th, 1937. For 24 hours she had had severe earache in the right ear, which had simultaneously gone deaf; she was unable to hear a loud shout more than a short distance from the ear. The temperature was normal and there was no mastoid tenderness. The meatus showed no discharge, but the membrane was covered with a white slough, and was sagging. Myringotomy was performed, and as the membrane was incised pure thick pus shot out instantly and filled the meatus. The deafness was unrelieved. Two days later the temperature was still normal. There was no mastoid tenderness, but a scanty purulent discharge from an adequate central perforation of the membrane. The reservoir test[1] was negative in 30 minutes. Politzerisation failed to improve the hearing. The bone conduction was normal and the Rinne test negative; Weber's test was lateralised to the right ear. The deafness was still severe. Three days later the picture remained unchanged, without any fever, mastoid tenderness, earache, or much discharge. In fact the ear on clinical examination appeared to be settling down, and but for the severe deafness the question of a mastoid operation would not have arisen at this stage.

Since the hearing did not improve however, the mastoid was opened on the fifth day after myringotomy. The tip of the mastoid process wes found to be full of pus, under great pressure, welling out as soon as the mastoid cortex was breached. The lateral sinus was far forward. The abscess was confined chiefly to the tip of the process and extended posteriorly from the tip behind the sinus plate.

This patient was seen again in February, 1938, when the ear was soundly healed, the tympanic membrane intact and normal, and her hearing was completely normal.

In this case the severe deafness alone, in the presence of an acute suppurative otitis media, was the only physical sign of extensive mastoid suppuration.

CASE 2.—A man of about 30, seen on Jan. 20th, 1938, complained of suddenly going deaf in one ear 14 days previously. For the last 24 hours he had had slight earache, and the ear had only then begun to discharge. On examination, extensive deep tenderness was found all over the mastoid process, without any œdema. The deafness was severe, a conversational voice not being heard. The meatus was filled with thick creamy pus which poured through the perforation in the membrane. The reservoir test was positive in 5 min. The temperature was about 99° F. The patient felt very well. It was not possible to admit him until two days later, when the condition was unchanged, pus pouring out of the ear, and the reservoir test still being positive in 5 min. After the meatus had been cleaned pus could be seen oozing through the perforation during inspection.

Operation on the third day of the discharge revealed an extensive mastoid abscess in a cellular process, the abscess being especially confined to the tip of the process and extending posteriorly deep to the sinus plate. Recovery was uneventful, the hearing being restored to normal.

CASE 3.—A man aged 54 developed a bilateral attack of acute otitis media three weeks before Sept. 7th, 1933, when he was first seen. He had felt giddy with vomiting and earache. The temperature was raised on one occasion only. There was a scanty discharge. The earache had persisted on and off but mildly for the three weeks. The hearing, previously good, was completely lost. A shout could be heard only close up against the ear. The left ear was the worse, and Weber's test was lateralised to this ear. Both membranes were still bulging and intact, and a bilateral myringotomy was performed. This did not relieve the deafness, which persisted in spite of subsequent inflation of the ear.

A scanty purulent discharge continued until Oct. 25th, when I operated on the left mastoid. The cortex was very thick, and at the apex of the mastoid a large intra-mastoid abscess was discovered. The right membrane showed a nipple perforation through

(Continued from previous page)

We are indebted to Dr. S. Boyd Campbell for the clinical history of this patient.

REFERENCES

Netter, A. (1930) *Bull. Soc. méd. Hôp. Paris*, **54**, 793.
Schiff, C. I., and Brain, W. R. (1930) *Lancet*, **2**, 70.
Thalhimer, W. (1924) *Arch. Neurol. Psychiat., Chicago*, **12**, 73.

[1] Asherson, N., *Lancet*, 1935, **1**, 150.

which mucus exuded. A myringotomy was performed on this ear. Both ears subsequently dried up. The hearing improved but was not restored to normal. One year later ordinary conversation voice was easily heard at two yards with the left ear, but not a whisper. Bone conduction was normal.

In this case the severity of the deafness on the first visit overshadowed all the other symptoms, and it would have been advisable to have drained the left mastoid (the worse ear) when the ear showed no signs of resolution within, say, a week. The condition in this case may be looked upon as a late stage of that in Case 1 and as a warning that it may not be safe to delay operation on the mastoid when sudden loss of hearing complicates otitis media.

Clinical and Laboratory Notes

VARICELLA WITH ENCEPHALITIS

By Robert Swyer, M.R.C.S., D.P.H.
DEPUTY MEDICAL SUPERINTENDENT, NORTH-EASTERN HOSPITAL (L.C.C.), LONDON

THE fact that up to the end of 1935 only 120 cases of varicella with encephalitis had been reported, and of these only 12 were in this country,[1] is considered sufficient reason for recording this case.

The patient was a girl aged 5 years, who was admitted to the Brook Hospital on June 13th, 1938, with a history of cough and rash for two days and sore-throat for one day. She was said to have had two "fits" during the twenty-four hours before admission but had not previously suffered from fits nor sustained any injury.

Condition on admission.—Fauces were injected, cervical glands were palpable, and a general though sparse eruption of typical lesions of varicella was present. All reflexes were normal, and there was no muscular rigidity. Temperature was 98·8° F., pulse 118, and respirations 24.

Progress.—During the night after admission the child was reported to be mentally strange; she climbed out of her cot and attempted to push it around. On the following morning she appeared to be terror-stricken and actively resisted any attempt at examination. At 5.15 P.M. on the same day (June 14th) a right-sided epileptiform convulsion commenced, and 0·5 c.cm. of a 20 per cent. solution of phenobarbitone was injected intramuscularly. The convulsions ceased about 8.30 P.M., when the patient was semi-conscious, but recurred at 10 P.M., lasting about ten minutes. This injection was repeated, and there were no further convulsions. Temperature was now 102° F., pulse 144, and respirations 28. On June 15th the child was semi-conscious and incontinent of both urine and fæces. She showed signs of cerebral irritation, lying curled up on her left side and resenting any interference. Pupils were equal and reacted to light, but tendon reflexes could not be elicited, owing to non-coöperation. There was no neck rigidity and the condition did not resemble meningitis. Temperature rose to 104·8° F. She slept well that night and answered questions on the morrow, though her speech was blurred. Temperature was now 99° F. Lumbar puncture was performed under local anæsthesia, and 25 c.cm. of crystal-clear fluid under increased pressure was withdrawn. The pathological report on this fluid was as follows: total protein 55 mg. per 100 c.cm. (slightly increased); globulin a trace; chlorides 670 mg. per 100 c.cm. (slightly decreased); lymphocytes 30 per c.mm.; Wassermann reaction negative; no tubercle bacilli found; cultures sterile. There was no change in the colloidal gold curve.

On June 17th the patient was docile but refused to speak. There was retention of urine for twenty-one hours. Some spasticity of limbs was noted, but tendon reflexes were absent, abdominal reflexes brisk, and pupils equal and reacting normally to light and accommodation. Kernig's and Brudzinski's signs were absent. The varicellous lesions were now drying up. For the next five days the mental condition steadily improved and the child amused herself by drawing. On June 23rd the knee-jerks reappeared, but the child was fretful and sullen (at an interview the mother stated "she has always been very reticent except with people she knows well"). The clinical picture was further complicated on June 26th by an attack of mumps. This pursued a normal course and apparently had no effect on the nervous system, which appeared normal by July 4th and remained so until the date of her discharge from hospital on July 16th.

Whilst it is admitted that evidence has recently been submitted of the neurotropic tendency of the virus of mumps, it is considered that in the present case the encephalitis can have had no connexion with the mumps, for the former was virtually over before the onset of the latter.

My thanks are due to Dr. J. V. Armstrong, medical superintendent, Brook Hospital, for permission to publish this case.

[1] Underwood, E. A., *Brit. J. Child. Dis.* 1935, **32**, 83, 177, 241.

WHITE FORELOCK
A NEW MUTATION

By A. M. Nussey, M.D. Lond., M.R.C.P.
PHYSICIAN TO SELLY OAK HOSPITAL, BIRMINGHAM

PHYSIOLOGICAL abnormalities of pattern of skin and appendages are often so obvious that they attract a good deal of attention. Cockayne (1933) has given a full account of them, and he divides individuals with a central white forelock into (1) piebalds, and (2) those with a white forelock only. The piebalds show in addition to the white frontal blaze a number of unpigmented patches of skin, but they all have a pigmented dorsal stripe.

Only four families with this condition have been described in England (Harman 1909, Cockayne 1914 and 1935, and Nussey 1938). Those with a white forelock only show a central blaze which corresponds to that seen in some domesticated animals. The skin from which the blaze grows is unpigmented. Cockayne (1933) cites two pedigrees of this abnormality in addition to one collected by himself.

In both of these conditions the abnormality is present at birth and as a dominant character is handed down direct from generation to generation. Occasionally the white forelock appears as a mutation in a family in which no such abnormality was known before and, once established, transmission occurs in the usual dominant fashion as shown in a family recorded by Pearson (quoted by Cockayne 1933). In that family "a male with a white forelock born of normal parents appeared in a sibship of seven, and of his four children two boys and a girl inherited it, and it is probable that the remaining girl also had the white forelock." I recently came across a case which appears to represent such a new mutation.

A boy aged 10, born in Carmarthen, is an only child of unrelated parents. His mother, one of seven sibs, came from a family settled in Carmarthen, whereas the father, one of fifteen sibs, came from Cardiganshire. No abnormalities of pattern were known in either family. The boy has had since birth a white forelock (see Figure) which is practically central, but with a slight bias to the right, and which extends back almost to the lambda. The skin beneath the blaze and the adjoining portion of the forehead has always been unpigmented. The rest of the hair is light brown. His eyes are bluish-green and show no heterochromia and there are no abnormal markings elsewhere on the body.

It will be interesting to follow up the case with regard to the possibility of transmission of the abnormality.

BIBLIOGRAPHY

Cockayne, E. A. (1914) *Biometrika*, **10**, 197.
— (1933) Inherited Abnormalities of the Skin and its Appendages. London.
— (1935) *Biometrika*, **27**, 1.
Harman, Bishop (1909) *Trans. ophthal. Soc. U.K.* **39**, 35.
Nussey, A. M. (1938) *Biometrika*, **30**, 65.

REVIEWS AND NOTICES OF BOOKS

Histological Technique

Second edition. By H. M. CARLETON, M.A., B.Sc., D.Phil., University Lecturer in Histology, Oxford; and E. H. LEACH, M.A., B.Sc., Demonstrator in Histology, Oxford. London: Humphrey Milford, Oxford University Press. 1938. Pp. 383. 17*s.* 6*d.*

MANY workers in histology, now of an age to have acquired technical experience, will remember gratefully the first appearance of this book in 1926. Several generations of beginners have marched into the field since then, and each in turn has been indebted, either directly or indirectly, to Dr. Carleton.

A significant if small token of the change in outlook during the last 10 years lies in the rearrangement of the first two chapters, which are now combined under the title "The cell as a structural and physico-chemical entity." Similarly the new Fig. 1 epitomises the modern attitude towards microscopic appearances. It would not be possible in 1938 to give an adequate diagram of the cell and its contents in a single chart, but Fig. 1A illustrates the view that the neutral red vacuoles and surrounding dispersed lipines represent the Golgi element during life. Fig. 1B illustrates the Golgi element which is thought by some authors to have this form during life as well as after impregnation, and Fig. 1C illustrates the cell fixed by a protein precipitant, sectioned, stained, and mounted.

It is hardly possible for medical students to acquire skill in cutting and staining sections, but it is essential that they should not look at the differentially stained sections prepared for them by experts as though they were mosaic transparencies of differently coloured paper—a species of super-diagram. Second-year students would do well to consult this book from the outset of their histology course. A preliminary reading of its first chapter and the one prepared in collaboration with F. Haynes giving a general outline of the theory and practice of staining would give an understanding of the effects produced by the same dyes upon different elements of the tissues examined, and thus lead to the use of the microscope as an analysing agent rather than as an aid to "spotting" an organ at an examination. Biochemists and biophysicists are beginning to enlist the collaboration of histologists in localising, within a tissue mass, the site of reactions referable to the mass as a whole. It is during the medical student's first contact with histology, while he is actually studying biochemistry and biophysics, that his interest in productive association between these methods of investigation should be fostered.

Dr. Carleton has taken great trouble to note small points of technique that come naturally with practical experience but are often overlooked by beginners. The only substantial omission we regret is that of the ingenious method devised by H. M. Kniseley (1936) for examining living organs with their normal circulation intact. The apparatus is so simple that a group of students would enjoy setting it up and those particularly interested in the function of tissues could profitably use it on different sites and record results.

Minor additions in the book which will interest more experienced workers are the notes on Xam, a new mounting medium particularly useful for preparations likely to fade (p. 114); and on gallocyanin, a particularly good stain for the Nissl substance of nerve-cells (p. 244); and a method for achieving the end-result of the Weigert-Pal process without the use of a primary mordant (p. 259). The authors have not aimed at making an exhaustive reference book for experts but at bringing together such information about histological technique as will put a beginner in the way of making good preparations for himself.

A copy of their book should find a place in every histological laboratory.

Diseases of the Thyroid, Parathyroid and Thymus

Third edition. By ANDRE CROTTI, M.D., F.A.C.S., LL.D., R.I.C.S., Surgeon to Grant, Mt. Carmel, and Children's Hospitals; Medical Director, Columbus Free Cancer Clinic, Columbus, Ohio; Formerly First Assistant of the Pathological Laboratory at the University of Lausanne. London: Henry Kimpton. 1938. Pp. 1229. 90*s.*

IN its third edition this work contains several new chapters: on the parathyroids, on the anatomy of the autonomic nervous system in relation to the thyroid gland, and on the result of the author's researches into the ætiology of goitre. The book opens with a brief description of the anatomy, embryology, and histology of the thyroid gland, followed by a more detailed and useful account of its physiology. The relation of the thyroid to the other endocrine organs is well defined. Dr. Crotti has done nothing to elucidate the confusion surrounding classification of the various types of goitre. He objects to the term adenoma which, he says, has come to mean little more than a nodule, and he thinks a distinction should be made between diffuse parenchymatous adenoma, diffuse colloid adenoma, and nodular adenoma. The classification adopted by the American Society for the Study of Goitre is now in general use and it seems to us wiser to adhere to it for the present than to introduce another.

The pathology of the non-toxic goitre is dismissed in four pages; "parenchymatous" goitre and "colloid" goitre are described as separate entities, no attempt being made to link the various phases of thyroid activity and weld them into a progressive process. The important problem of the pathology of the "fœtal" adenomata is disposed of in half a page, the view that they arise from embryonic

tissue being accepted without discussion. The author says that these tumours are mobile within the gland itself and that when multiple "they may be played one against the other, much like a bunch of nuts held snugly in a sac." The malignant tumours are also dismissed rather briefly, almost as much space being devoted to 7 varieties of sarcoma as to carcinoma. The paragraph on metastases from malignant goitres states that sarcomata have a greater tendency to spread, and that they invade regional lymph nodes much earlier than epithelial tumours. The incidence of malignant diseases is discussed at considerable length but the clinical aspect, including treatment, occupies only a few pages. The author believes in excision even in "inoperable" cases and is prepared to sacrifice the common carotid as well as the jugular vein in advanced cases. He quotes the results in his own series of 24 cases, but these scarcely seem to justify his practice, for 16 were dead within six and 14 within two months. The chapter devoted to the pathology and clinical features of the various forms of thyroid insufficiency is excellent, and all the known factors in the ætiology of goitre are fully and critically discussed. The author describes his own experiments over nearly 30 years; his claim to have found a fungus in fresh goitre material, and also in certain drinking-waters and vegetables, which fulfils Koch's postulates, awaits confirmation. The chapters on the clinical manifestations of thyrotoxicosis lack coördination, but there is a wealth of detail in those dealing with the technique of operations on the thyroid, the best of which is that on post-operative complications and their management.

An interesting summary of our present knowledge of the thymus gland is included. As a work of reference the book is chiefly of value as a guide to the rarer pathological conditions affecting the thyroid gland.

Röntgenatlas der Asbestose der Lungen

By Prof. Dr. ERICH SAUPE, aus der Röntgen- und Radium-Abteilung des Rudolf-Hess-Krankenhauses, Dresden. Leipzig: Georg Thieme. 1938. Pp. 99. R.M.17.55.

THIS number of a well-known series of radiological atlases has been compiled by an expert who has done pioneer work on pulmonary asbestosis. It is now many years ago that Prof. Saupe with Prof. Rostoski and Dr. E. Kruger published one of the earliest and most extensive records in Germany on a group of asbestos factory workers. The first part of this atlas summarises work on pulmonary asbestosis in various countries. It gives a well-balanced account of the whole subject, from ætiology to prevention, and is illustrated with good photomicrographs. It includes also the official memorandum on asbestosis issued to industrial medical officers in Germany under the industrial insurance scheme in 1936. The second part reproduces a comprehensive collection of 43 radiograms illustrating various types of the asbestosis lesion and of other lesions with which it may be confused. The films are classified in three stages: (1) an increased delineation of the normal bronchial tree markings, together with the appearance of a delicate network resulting from the thickening of smaller bronchi not usually seen in radiograms; (2) a development of this fine network and the appearance of numerous minute shadows in the middle and lower parts of the field, showing an inclination of the latter to coalesce; (3) a further stage of (2) in which there is a diffuse darkening of the whole of the bases from the coalescence of these minute shadows and the obliteration of the normal contour of heart and diaphragm. The later radiograms of the series deal with diseases which may simulate asbestosis, such as various types of silicosis. All the other pictures are well reproduced. Much work on asbestosis has appeared in special technical journals which are apt to be overlooked by the general medical reader. The author has kept a keen watch for such contributions and has covered the whole ground well.

Philippine Pagans

The Autobiographies of Three Ifugaos. By R. F. BARTON, M.S. London: George Routledge and Son. 1938. Pp. 271. 15*s*.

THERE are, at the present day, a number of schools in the science of ethnology. In some measure they can be grouped into different categories according to the method employed by the practising ethnologist. A culture may be described and assessed by an observer who possesses another and a presumably higher culture. In his interpretations of any custom, ritual, or relationship, he will have to be perpetually on his guard against reading into the primitive culture motives derived from his own. Or, if he is sufficiently acquainted with the language, he may derive his interpretations from information supplied by the native. Mr. Barton has elected a third method, for he has encouraged his Ifugaos to tell him their life stories, trusting that the details of custom and ceremony will emerge in the process and reducing his own questions or promptings to the minimum necessary to obtain a coherent story. He has wisely inserted his questions and comments in brackets or in footnotes and the reader is left with the simple autobiographies of two adult men and one elderly woman. These autobiographies are frank; Mr. Barton admits that they "are appropriate only for mature readers." They reveal in a very striking manner the transition, in the life of the individual, from the most complete and heedless sexual promiscuity during youth, to a more or less rigidly demanded monogamy in later life. The psychological approach to the understanding of cultures will undoubtedly have an ever-widening field in ethnology; and Mr. Barton is to be congratulated on having supplied a useful testament about one of the many interesting tribes of the Philippines.

Pediatric Surgery

By EDWARD C. BRENNER, A.B., M.D., F.A.C.S., Director of Surgery, Riker's Island Hospital. London: Henry Kimpton. 1938. Pp. 843. 45*s*.

THIS book summarises the practice of the author and some of his colleagues on the staff of the New York Post-Graduate Medical School of Columbia University. It makes stimulating and provocative reading for British surgeons since many of the procedures advocated differ from those adopted by experts in this country. For example, Dr. Brenner favours the Coley operation for inguinal hernia in young children. Here we prefer to isolate the sac at the external ring, pull it down and ligate it, leaving the musculature of the inguinal canal intact.

Light ether narcosis is recommended for the operation on hypertrophic pyloric stenosis, rather than local anæsthesia. On p. 416 there is an illustration showing a method of dividing the circularly running fibres of the pyloric sphincters by means of two

pairs of dissecting forceps. In our experience these fibres are very friable, and readily part under pressure from the handle of a scalpel. The allocation of space is hardly proportionate to the importance of the various subjects. Rare conditions such as actinomycosis, amœbic abscess, or hydatid cyst of the lung are given ten pages, while acute retro-pharyngeal abscess and acute peritonsillar abscesses are dismissed in two. It is rather a shock to find in the section on megacolon that primary cæcostomy and colectomy are discussed and sympathectomy is dismissed in six lines with the comment that "certain cures have recently been reported following lumbar sympathectomy." The established pædiatric surgeon with an open mind will value this opportunity of comparing his technique with that of a different school. More elaborate description and argument than is here provided would be necessary to make the book helpful to tyros.

Annual Review of Biochemistry

Vol. VII. Edited by J. M. LUCK and C. R. NOLLER, Stanford University. Stanford University, P.O., California: Annual Reviews Incorporated. 1938. Pp. 571. $5.

THIS year's review maintains the high standard set by its six predecessors. The pattern provides for the review of each subject by a distinguished worker in that particular branch of biochemistry and, although there must be a certain amount of selection, nothing essential in the year's work has been omitted or given less than its proper weight. The result is a balanced survey. The volume of work published on the vitamins has necessitated the consideration of this subject in three chapters: the vitamin-B group by R. A. Peters and J. R. O'Brien; vitamin C by R. A. Peters and H. W. Davenport; and the fat-soluble vitamins by J. C. Drummond. New chapters on organic insecticides by F. B. LaForge and L. N. Markwood and on growth regulators in the higher plants by P. Boysen Jensen have been included. The hormones are discussed by O. Wintersteiner and P. E. Smith, and the metabolism of amino-acids and proteins by H. A. Krebs. This review offers year by year a rapid means of keeping up to date in biochemistry and a collection of the volumes should be accessible even in a modest reference library.

Secrets of Blind Intubation, and the Signs of Anæsthesia

By J. U. HUMAN, M.R.C.S., L.D.S., Anæsthetist to St. Mary's Hospital for Women and Children, Plaistow. London: John Bale, Sons, and Curnow. 1938. Pp. 67. 5s.

THIS little book with a large title gives evidence of close observation and much thought. Its pages provide for the student of anæsthetics many valuable practical hints, and inculcate a proper regard for the physiological events associated with the induction and maintenance of anæsthesia. Dr. Human approves of Guedel's division of the anæsthetic state into stages, the third of which has four planes, and his description of how to distinguish these planes is clear and convincing. He shows too that it is risky to follow the old custom of relying solely on respiration for guidance. It is of recent methods and doctrine that he writes with most enthusiasm. The part of the book devoted to intubation is particularly useful; both the text and the illustrations should be of help to the student learning to master this valuable method. It is in this part, however, that Dr. Human blots his copy-book by using the distressing phrase "to blind intubate" no less than three times in about twenty lines.

An Introduction to Human Physiology

Second edition. By LATHAN A. CRANDALL, Jr., M.D., Ph.D., Associate Professor of Physiology and Pharmacology at the Northwestern University Medical School, Chicago. London: W. B. Saunders Co. 1938. Pp. 356. 9s.

THE author of text-books of the "introductory" type has to steer a careful course. On the one hand he may provide a mass of principles with so little detail that he fails to hold the interest of the student; on the other he may advance so far into his subject that the student forgets he is reading a mere introduction and tries to use the manual as a basic text-book. Prof. Crandall's work belongs to the second group, but his clear style enables the reader to consume it without the sensation of swallowing a condensed pill. It is remarkably complete for its size, and since every opportunity is taken to note the practical applications of physiological knowledge it should be useful to doctors as well as to students. In the new edition the section on the fundamental principles of physiology has been enlarged and many others have been revised. The whole is a clear, concise, and up-to-date outline of human physiology.

Sub-Acute and Chronic Pericardial and Myocardial Lesions

Due to Non Penetrating Traumatic Injuries. By ERIK WARBURG, M.D., Professor of Internal Medicine in the University of Copenhagen; Physician-in-Chief, Rigshospitalet, Copenhagen. London: Humphrey Milford, Oxford University Press. 1938. Pp. 147. 12s. 6d.

Erik Warburg has produced an important little monograph surveying the subject of mural disease of the heart following external injury. Nearly 200 cases have been collected, analysed, and reviewed as a whole clinical picture, and several appendices, notably one on some cases of perpetual arrhythmia provoked by violent exercise, have been added. The question is a real one which has so far had but little attention. A study of it which comes from this famous centre of forensic investigation has medico-legal value, for the conditions may be the subject of civil claim. All the 13 new cases described in detail by Warburg himself come from the Danish directorate of accident insurance. They are described in the fullest detail and in themselves make a striking nucleus to the problem as a whole. The book is pleasantly written in good English.

CHRISTMAS CARDS.—In less than a month we shall be burning Guy Fawkes, and as Father Christmas has a way of rising with alarming promptitude from the ashes it is none too early to begin to think of Christmas cards. The Grenfell Association have sent us attractive examples of their 1938 collection which depict scenes from the life "down North" in black and white and in colour. The dignified restraint of the greetings they bear will appeal to those who are sometimes embarrassed by the effusiveness of many Christmas card manufacturers. The cards may be had in boxes of six at various prices from the offices of the association, 66, Victoria-street, London, S.W.1.

THE LANCET

LONDON: SATURDAY, OCTOBER 22, 1938

INOCULATION AGAINST COLDS

WELL-CONTROLLED tests of the efficacy of vaccines against the common cold have already shown that their value is at best highly questionable. Another nail is driven into the coffin of their reputation by an admirable study, lasting more than three years, reported by DIEHL, BAKER, and COWAN of the students' health service and the department of preventive medicine and public health of the University of Minnesota.[1] Their subjects were all students of the university who volunteered to participate because they believed themselves to be particularly susceptible to colds. By random assignment they were divided into equal groups and three experiments were undertaken.

In the first of these the experimental group received subcutaneous injections of a vaccine containing pneumococci, streptococci, *Hæmophilus influenzæ* (Pfeiffer's bacillus), *Micrococcus catarrhalis*, and staphylococci, the organisms being destroyed mechanically instead of by heat. It was given in doses of 0·5 c.cm. twice a week for three weeks and then of 0·5 c.cm. every fortnight throughout the autumn, winter, and spring. The control group received injections of normal saline administered in the same way, at the same intervals, and throughout the same period; they were all under the impression that they were having the vaccine and even the physicians who saw them at the health centre when they contracted colds did not know which group they came from. Clearly it would be hard to devise a better trial, and the authors will be congratulated (by all except their victims) on its thoroughness.

The students were instructed to report to the health service whenever a cold started and to keep a record of each cold of more than 24 hours' duration. The inoculated group (272 persons) reported from memory an average of 5·9 colds per person during the previous year, and during the period of observation their yearly average was only 1·6—a reduction of 73 per cent. This looks very well until we turn to the control group and find that its 276 members reported 5·6 colds per person for the year before the study and only 2·1 during the study—a reduction of 63 per cent., which is quite as large a reduction as has been reported in some uncontrolled investigations. The moral to be drawn here is that records of past incidence are not to be relied upon and that the assessment must rest entirely on the relative experiences of the two groups in the years of observation. Such comparison shows a rather lower incidence on the inoculated (1·6 to 2·1 colds per person) but hardly enough to be of practical importance, and the number of days lost from school showed only an immaterial difference (1·1 per person in the inoculated, 1·0 in the controls). The proportion of subjects reporting no colds at all was 20 per cent. of the inoculated against 11 per cent. of the controls, and it is entirely in this 9 per cent. difference that the lower incidence of the inoculated group lies. In the vaccine group 12 cases of complications, such as tonsillitis and bronchitis, were reported; in the control group there were 11. Lastly 55 students were changed after a year from the inoculated to the control group, or vice versa—believing, of course, that they were being inoculated at all times—and their experiences under the two conditions did not differ appreciably. In short, there is only a very little to be said in favour of the really intensive inoculation procedure that was adopted.

In a second experiment, in which a polyvalent vaccine administered orally was used, a wholly negative result was reached. The experimental group of 363 had 1·8 colds per person per year and the control group of 372 had 1·7; the former lost 0·8 days per person, the latter 0·7; 13 and 14 per cent. respectively had no colds at all; 30 and 34 were registered as having complications. Yet both record a reduction of 70 per cent. from the number of colds they remember having in the previous year, which again emphasises the unreliability of recollections. A third experiment, in which a streptococcus vaccine was given by mouth and a control group took lactose-filled capsules, was no more encouraging. To sum up, these careful experiments support the view that vaccines are of little or no value either for reducing the incidence of colds or as safeguards against complications arising from them. They show the necessity of contemporaneous controls, for in face of the results it is difficult to have any faith in histories of past attacks. And lastly, as the authors point out, they demonstrate how easily individual opinions can go astray: "During the course of this study several physicians have written or called us to say 'I have a patient who was a student at the University last year and took your cold vaccine and got such splendid results that he wants to continue it. Will you be good enough to tell me what vaccine you are using?' And we would look it up and find in many instances that the person in question got the sterile saline solution or the lactose capsules."

[1] Diehl, H. S., Baker, A. B., and Cowan, D. W., *J. Amer. med. Ass.* Sept. 24th, 1938, p. 1168.

SELF-ADVERTISEMENT IN PROFESSIONAL LIFE

PROBLEMS of professional ethics vary with the times. In a paper read to the British Association in August Mr. T. H. MARSHALL showed[1] convincingly how the antithesis between commerce and the professions has been weakened. Nevertheless the code of self-advertisement still separates

[1] See *Nature, Lond.* Oct. 15th, p. 712.

them. The cruder methods of canvassing for patients, now less seldom exploited, are as easy to distinguish and suppress as they always were. The developments of broadcasting and popular journalism, on the other hand, have produced fresh opportunities of indirect self-advertisement and fresh difficulties in drawing the line. Newspaper writing is growing less anonymous. We are reaching the time, it is said, when the average reader will not look at a paragraph in his daily paper unless his attention is stimulated by a picture of the author or subject. The prospect of advertisement is intensified. There is a clash between professional standards and popular curiosity. The results of medical research and professional experience, the report of a scientific discovery, or the aspects of a new treatment—these are most appropriately made known in the meetings of medical societies, in the records and publications of medical bodies, and in the technical journals which the profession is accustomed to read. If this information is translated into a paragraph in the lay press, there are obvious chances of false emphasis and want of proportion in the treatment of the subject; there is also a natural tendency that, if he practises medicine or surgery, the author will be exalted as an "eminent" practitioner or a "brilliant" specialist, and therefore as a man who will give his patients better value than his colleagues can. Professional eminence, according to the accepted canons of the medical profession, is based on innate worth and character, something recognised by the expert judgment of fellow-practitioners, not something conferred by the almost accidental verdict of popular values.

If a medical man is not in actual practice he is allowed a wider latitude in publicity; he cannot be accused of seeking to attract patients by forbidden methods. If he is in practice he must be more careful. Interviews with some importunate representative of the lay press are a known danger. Signed articles and letters in the newspaper may be innocent or objectionable according to circumstances. When he adopts a profession, a man does not abandon his right as a citizen to express his opinions in public. But the warning notice of the General Medical Council tells him that it is contrary to the public interest and discreditable to the profession if he attracts attention, or allows others to give him publicity "for the purpose of obtaining patients or promoting his own professional advantage." He must not for this purpose directly or indirectly procure or acquiesce in publicity commending his professional skill, knowledge, services, or qualifications or depreciating those of others. The huckster in the marketplace may shout that his goods are the best and cheapest and that others' goods are inferior. A registered medical practitioner, in entering his profession, consciously and deliberately adopts a different standard. It is not asked of him that he shall refrain from contributing his knowledge in that field where medical science and popular interest meet. But at least he can make it a condition that his contribution is not accompanied by a puffing commentary on his professional standing and experience, and that there shall be no undue and unnecessary particulars of his qualifications and career. He can stipulate that his photograph and address shall not appear. And in these matters the prominent members of the profession can set a high example.

The trouble is to draw the line. If someone demands a detailed code of the restrictions on professional self-advertisement, the answer may well be that of the child who, asked to say what an elephant is, replies "I can't explain, but I know one when I see it." Some specific prohibitions are doubtless possible. Rulings, arising out of particular cases, have been placed on record in the closely parallel case of the professional conduct of barristers. A member of the English bar must not put "barrister-at-law" on his private visiting-cards or on his notepaper or after his name at the entrance to a building where he has chambers. He may broadcast lectures on law, on the invitation of the B.B.C., but must not allow the publication of his name or photograph. It is contrary to professional etiquette for him to answer legal questions in newspapers, whether for a salary or at ordinary literary remuneration, if his name is directly or indirectly disclosed or liable to be disclosed or if the questions answered have reference to concrete cases which have actually arisen or are likely to arise for practical decision. He ought not to write for publication, or give an interview to a press representative, about cases in which he is or has been engaged. But the line is not very clear. Another ruling says there is no objection to a barrister writing articles on legal subjects of a popular nature for publication in a daily newspaper over his name with the addition "barrister-at-law." And he may write a series of signed articles for a technical journal dealing with legal questions which have a general interest for its readers; but he must omit all questions arising out of concrete cases. These restrictions on his referring to a concrete case are presumably directed to preserve professional practice rather than based on ethical grounds. However that may be, the standards of the legal profession are approximately those of the medical. A barrister who writes a text-book on some branch of law may cherish the honourable ambition to derive advancement from the legitimate communication of his knowledge. But he must not let vanity or a too thrustful parade of his supposed qualifications seek the limelight or tout for custom in a profession where, in theory, briefs tumble out of the branches without any shaking of the tree. Above all he must not try to increase his practice by disparaging a rival. By a singular doctrine of law barristers cannot be sued for negligence. In this respect they are more fortunate than the surgeon or physician who may have to listen in courts of law to criticism of himself put forward for reward from among the members of his own calling. There are other differences—such as result from the curious tripartite relation of barrister, solicitor, and lay client, or such as the institution of partnership which enables medical

men to circularise when new partners are introduced or old partners disappear. But in spite of these variances the general attitude of the two honourable and learned professions of law and medicine towards advertising is the same. It frowns upon the methods of the market-place. And if it remains difficult to provide a definition of advertising which will cover every contingency, the child's answer remains. The practitioner knows advertisement when he sees it. If he is in doubt whether a particular action will offend or no, he can always refrain.

DYSGERMINOMA

UNTIL recently it was generally held that all solid ovarian tumours, with the exception of the fibroma, were highly malignant. However, the work of R. MEYER and W. SCHILLER has shown that in this group of solid ovarian carcinomata are four tumours—the "special ovarian tumours"—which offer a much more favourable prognosis, and two of these, the arrhenoblastoma and granulosa-cell tumour, are of peculiar interest in showing hormonal activity. The other two "special" tumours are the Brenner tumour and the dysgerminoma. The Brenner tumour is something of a gynæcological curiosity, for it is essentially benign, seldom large, and commonly an accidental finding; the dysgerminoma is of greater significance and has a histological counterpart in the seminoma of the testis. It is remarkable that two gonadal tumours, histologically indistinguishable, should be so different in their clinical aspects.

Originally these tumours were described as alveolar sarcomata or carcinomata and it was M. CHEVASSU,[1] in his work on the tumours of the testicle, who first recognised their relationship to the gonadal tissue and suggested the terms seminoma and ovarian seminoma, according to the sex of the patient. It was then observed that the tumours were particularly liable to occur in cryptorchids and pseudohermaphrodites, but it was not until 1931 that the ovarian seminoma or dysgerminoma, as R. MEYER[2] proposed that it should be called, was definitely recognised by gynæcologists. In his classical paper MEYER described the clinical and pathological features of the condition and suggested that the tumours were derived from germinal epithelium which had not been determined to cells of either male or female type. This hypothesis was in keeping with the clinical observation that they commonly arose in persons of deficient sexual development. MEYER regarded them as being of low malignancy. Over a hundred cases have now been described, notably by G. DOEDERLEIN,[3] NOVAK and GRAY,[4] and P. M. G. RUSSELL,[5] and it is possible to define the clinical picture. The tumours generally arise in young adults in the second decade, though many have been described in children and one in a patient aged 52. The symptoms are those usual in solid ovarian tumours—abdominal pain and swelling with slight ascites. Sexual underdevelopment is not nearly as common as was suggested in the earlier accounts; a number of the patients were parous and in some of the cases, such as that of STABLER and GREIG THOMSON,[6] the tumour obstructed labour. Hormonal studies have proved negative and it is more than probable that when these tumours occur in pseudohermaphrodites the chromosomal defect which has induced the organic change has also played a part in the production of the tumour

At operation the tumour has the appearance of a fibroma, though somewhat softer; usually they are encapsulated and easily removable; in about a quarter of the cases, however, there is clear evidence of malignant infiltration with deposits in the opposite ovary and omentum. The prognosis of these two types is very different. Where an encapsulated tumour is removed the patients remain well over a period of years and have borne children. Where metastases are present the prognosis is poor, though arguing from the cytological character and the behaviour of the male seminoma the tumours should be radiosensitive.

The seminoma of the testicle has recently been studied in some detail from the clinical aspect by R. T. PAYNE[7] and from the pathological by INNES, HARVEY, and DAWSON.[8] Testicular seminomata arise in the fourth decade. They are regarded as very malignant, though PAYNE believes that the prognosis is not so poor as is generally thought. There is little agreement about the hormonal activity of the male tumour, largely owing to the lack of clear distinction between it and the testicular teratoma in which the Aschheim-Zondek test is commonly positive. A careful hormonal analysis of a large series of testicular seminomata would be of considerable interest.

The histiogenic relationship of the various solid gonadal tumours in the female may be summarised by saying that the dysgerminoma represents a tumour of undifferentiated germinal epithelium corresponding to that found in a seven weeks' embryo. The arrhenoblastoma consists of immature gonadal elements with male hormonal secretion and is associated with a masculine type of hirsutism and amenorrhœa. The granulosa-cell tumour occurs about the menopause and is associated with excessive production of œstrin inducing an endometrial hyperplasia with menorrhagia. Finally W. P. PLATE[9] has described a gynandroblastoma in a patient with male hirsutism and menorrhagia, the tumour resembling in some places a granulosa-cell type, elsewhere an arrhenoblastoma. Unfortunately no hormonal assay was made in this case.

[1] Les tumeurs du testicle, Paris, 1906.
[2] *Amer. J. Obstet. Gynec.* 1931, **22**, 697.
[3] *Zbl. Gynäk.* 1936, **60**, 1027.
[4] *Amer. J. Obstet. Gynec.* 1938, **35**, 925.
[5] *J. Obstet. Gynæc.* 1938, **45**, 258.
[6] *Ibid*, 1937, **44**, 705.
[7] *Lancet*, 1938, **1**, 364.
[8] *Edinb. med. J.* 1938, **45**, 36.
[9] *J. Obstet. Gynæc.* 1938, **45**, 254.

ROYAL SOCIETY OF ARTS.—On Wednesday, Nov. 2nd, at 8.30 P.M., Lord Amulree will deliver the inaugural address of the 185th session of this society. He will speak on industrial holidays. Further information may be had from the secretary of the society, John-street, Adelphi, London, W.C.2.

ANNOTATIONS

RESEARCH IN MEDICINE

A LASTING impulse to rank among those who strive to pursue or at least to apply new knowledge must have been excited in students who listened to Sir Henry Dale's address at Guy's last week. Without disparaging the classic contributions to medicine he illustrated by apt examples his conviction that knowledge has advanced more in the past few decades than in several centuries preceding them. Sir Henry sees in the emergence of medicinal treatment dealing radically with causes rather than with symptoms an augury of the continued and accelerated development of medicine into an experimental science. Though indifference may delay or uncritical eagerness may unduly hasten the acceptance of new resources, sooner or later effective weapons come into current use and eventually, it may be hoped, the ordinary practitioner will be enabled to detect and indeed anticipate many failures in normal function which now pass unrecognised.

The postponement of this stimulating address to the youngest medical audience brought its delivery within a few days of Sir Edward Mellanby's more elaborate account to their seniors not only of some of the fruits of medical research but of the soil which has nourished them in our country. In these days when the State is being freely criticised for inadequate policy and limited vision in many directions, there is cause for pride in the enlightened administration of the funds designed to advance knowledge of medicine. Diligent readers of the detailed annual reports of the Medical Research Council will find this general exposition of the ideals and policy of the Council illuminating, and others less familiar with its activities will be impressed by their range. The precautions taken against political influence, against the growth of a dictatorial attitude, mistakes in appraisal of discovery, or the continued subsidy over long periods of unproductive research are patiently explained. For good reasons the Medical Research Council cannot properly advertise the value of the discoveries of their investigators, or continually interpret these to the public. Their job is to promote discovery, not to implement its application. Sir Edward's earnest plea to the Royal College of Physicians of London as a body and through its fellows and members to use its prestige and influence in leading the profession and the public to appropriate action will surely not fall on deaf ears.

ANÆMIA ASSOCIATED WITH ALCOHOLISM

ATTENTION has often been drawn to the association of a macrocytic type of anæmia with polyneuritis, pellagra, and liver cirrhosis, conditions which are common in chronic alcoholics. The suggestion has been made that the macrocytosis might be dependent upon alcohol addiction itself. Bianco and Jolliffe therefore undertook a study of the blood picture in 184 cases of chronic alcoholism.[1] Of these 159 were complicated by one or more of the following diseases: polyneuritis, pellagra, alcoholic stomatitis, alcoholic encephalopathy, or liver cirrhosis; 25 had none of these diseases or any other recognised stigmata of chronic alcoholism. Anæmia was not found in the uncomplicated group but was present in 61 per cent. of the complicated group; macrocytosis, however, as measured by volume was present in 50 per cent. of both groups. A macrocytic anæmia was not limited to patients with cirrhosis of the liver or pellagra but occurred with the same frequency in those with polyneuritis, stomatitis, and encephalopathy. No correlation was found between the frequency of macrocytosis and achlorhydria, severity of liver damage, or the presence of an enlarged liver. The authors therefore conclude that the macrocytosis of the alcohol addict is not a manifestation of failure on the part of the liver to store the hæmopoietic principle but an extrinsic deficiency of some necessary substance required to maintain hæmocytosis. Evidence from another source also suggests that even a severely damaged liver is able to store hæmopoietic principles. Schiff and his colleagues[2] have shown that the livers of patients with portal cirrhosis, obstructive cirrhosis secondary to neoplasm of the hepatic duct, chronic passive congestion, and severe leukæmia with infiltration are all capable of inducing typical remissions in pernicious anæmia and therefore of storing the essential principle. They also conclude that the macrocytic anæmia associated with liver disease is not caused by a failure of storage. Since the livers were hæmopoietically active absorption from the intestinal canal must also have been adequate. It is possible that some failure of utilisation is the explanation of macrocytosis both in liver disease and in alcoholics.

[1] Bianco, A., and Jolliffe, N., *Amer. J. med. Sci.* 1938, 196, 414.

DOSAGE IN RADIATION THERAPY OF CARCINOMA OF THE CERVIX

IT is now established that no method of assessing radiation dosage in terms of milligramme-hours or millicuries destroyed gives a true picture of the dose received by the tissue. In certain regions the dose delivered by various radium distributors can be measured in röntgens (r), but the uterine cervix has so far presented almost unsurmountable difficulties. A gallant, if not entirely successful, attempt to overcome them has been made by Dr. Bernard Sandler.[3] His approach to the problem is systematic. He points out the wide variations in the size of the vagina, and discusses the effect of such changes in the distribution of the radium containers as must arise when the cervix is destroyed by an excavating cancer. He describes the probable lines of extension of growths and specifies certain points as landmarks where the dose should be measured, in order to calculate its probable effect on malignant cells or on normal tissues in that situation. Finally, he attempts to study the dose delivered by various techniques: (1) the modification of the Heyman technique carried out at the Marie Curie Hospital; (2) the Paris technique of Regaud; (3) the Manchester modification of (2). Unfortunately he fails to realise the adaptability of these methods in the hands of experienced clinicians. Moreover, even allowing for the deficiencies of schematic drawings, the diagrams given do not represent the method of applying radium practised at the Marie Curie Hospital. It is explained in the text that the boxes are placed well out in the fornices to ensure a wide cone of radiation to the parametria, but in the diagram the boxes are shown in the wrong position; nor is it made clear that a large number of applicators of different sizes and shapes are available, or that each of the three applications may be different. It must

[2] Schiff, L., Rich, M. L., and Simon, S. D., *Ibid*, p. 313.
[3] *Brit. J. Radiol.* September, 1938, p. 623.

be remembered, moreover, that the clinician has an opportunity of varying not only his applicators but his time factor. The question at issue, however, is not so much whether Dr. Sandler has given an adequate picture of the various techniques as whether it is practicable to give measured doses at fixed points and translate them into terms of röntgens per hour received per milligramme of radium placed in recognised applicators. In theory it seems as good a way of measuring dosage in this region of the body as any other available, though none is as yet satisfactory. Of the actual points selected as indices probably those in the parametrium are the most important not only because growth is likely to have spread there but because they lie in the greatest mass of tissue exposed to radiation, the mucous membrane at the other points taking only second place.

The table in which the doses received, at eleven defined points, from radium distributed according to various methods are estimated, must not be taken at its face value. Dr. Sandler himself points out that the calculated dose must be regarded as maximal because an ideal theoretical distribution is assumed. He does not, however, take into consideration the change which takes place in the size and distensibility of the organs during treatment, a change which is bound to influence the position of radium applicators when periods of one or two weeks elapse between treatments, and even more when the patient is subjected to treatment with X rays between the radium insertions. The largest error seems to occur in the assessment of the Manchester technique, where the size of the vagina makes most difference, and exposure to X rays is a routine measure at some time between the first and last radium treatments. If the figures quoted represent the maximum dose obtainable with the various methods were treatment continuous they are considerably above the maximum for any interrupted technique.

SULPHANILAMIDE AND MALARIA

IN view of the amazing activity of sulphanilamide and similar substances in certain bacterial infections it is not surprising that these compounds are being enlisted against all manner of organisms including various protozoa. Not long ago we published[1] a chart prepared by Dr. Pakenham-Walsh and Mr. Rennie which seemed to show that Prontosil and Proseptasine influence the course of malaria. A number of other authors, including van der Wielen,[2] de Léon,[3] and Hill and Goodwin,[4] had previously reported that prontosil compounds are of considerable value in the treatment of this disease in man; following which Chopra and Das Gupta,[5] who treated two monkeys infected with *Plasmodium knowlesi* with Soluseptasine, were so far impressed that they wrote: "it may be stated with certainty that sulphonamide compounds are effective specific drugs for malaria." Although the significance of "specific" may be obscure, their opinion is clear, and it becomes interesting to contrast it with that of Faget, Palmer, and Sherwood[6] who say that sulphanilamide and prontosil "possess no practical chemotherapeutic value in malaria." This conclusion is supported by the clinical observations of Read and Pino[7] and bears out the early indications obtained at Elberfeld in experimental work on bird malaria.

Whatever interest this clash of opinions may possess for the psychologist or the pharmacologist, it certainly tells the practising physician that none of the sulphanilamide compounds so far tried can at present be accepted as a satisfactory or safe substitute for quinine or Atebrin in the routine treatment of malaria.

BACKGROUND TO LETTSOM

IN his presidential address to the Medical Society of London on Oct. 10th, Dr. C. E. Lakin betrayed an almost encyclopædic knowledge of the social state of England, especially London, during the century in which Lettsom founded that society. Confessing that the material for his picture was so vast that the choice of colours was well-nigh impossible, he began by describing "Happy Old Leisure sauntering in the sun by his garden wall and picking off the leaves from his apricots," and bemoaning our modern lack of tranquillity and beauty. "In our day the lower middle class, as yet dead to the spirit of beauty, by their sheer preponderance are able to force their predilections upon the rest of the community, for commerce is only too ready to cater for its biggest customer, with the result that cheap and nasty—and mass production at that—is in full sway." He then went on to paint the other side of the picture: the industrial revolution, scarcity of good food, rickets stalking throughout the land, shocking roads infested with vagrants and footpads, "upheavals and alarms" such as Jacobite rebellions, the American War of Independence, and the French Revolution. Among the darker pigments, however, gleamed steady improvement. "Turnip" Townshend retired from politics in 1731 to Raynham in Norfolk, where he introduced the proper rotation of crops, whereby nearly a third was added to the cultivable land of England and the far from vicious circle established of larger and better crops→bigger and finer herds→more manure for the soil. This was accompanied by drainage of marshes, reclamation of heaths, and improvement of highways by the Turnpike Acts. At this point his listeners rode in imagination with Dr. Lakin in a coach to London and saw its swinging shop-signs, the oil lamps at every tenth house (but lit only in winter from about 6 P.M. till midnight and only from the third day after full moon till the sixth day after new moon), the corpses on the gibbets, and the rebels' heads on Temple Bar. Next came a glance at a bookshop, a print-shop, and a coffee-house, such as Child's in St. Paul's Churchyard and Batson's in Cornhill, favoured by the fellows of the College of Physicians for meeting the apothecaries, who explained the cases to them, received their advice and prescriptions, and went back to treat their patients without their ever having been examined by the physicians. Cupping required a cupper and bleeding a barber-surgeon; otherwise treatment was at the hands of the apothecary. It was at a coffee-house that Radcliffe received a summons to hurry to see Queen Anne; answering that she had "nothing but the vapours" he lost his court appointment. Dr. Lakin related a grim story of body-snatching from a burial ground near Whitefield's Tabernacle and the capture of "Lousy Jack." So, after all, it was not an age of "days of quiet ease when everything seemed

[1] Pakenham-Walsh, R., and Rennie, A. T., *Lancet*, July 8th, 1938, p. 79.
[2] van der Wielen, Y., *Ned. Tijdschr. Geneesk.* 1937, **81**, 2905.
[3] de Léon, A. D., *Publ. Hlth Rep., Wash.* 1937, **52**, 1460; see *Lancet*, 1937, **2**, 1152.
[4] Hill, R. A., and Goodwin, M. H., Jr., *Sth. med. J., Nashville*, 1937, **30**, 1170.
[5] Chopra, R. N., and Das Gupta, B. M., *Indian med. Gaz.* July, 1938, p. 395.
[6] Faget, G. H., Palmer, M. R., and Sherwood, R. O., *Publ. Hlth Rep., Wash.* August 5th, 1938, p. 1364.
[7] Read, H., and Pino, J. O., *Arch. Schiffs- u. Tropenhyg.* 1938, **42**, 132.

to have settled down to a stable equilibrium." And he left his hearers feeling that the only real difference between then and now is the introduction of a greater speed into the modern world; and speed (we have it on the authority of Oliver Wendell Holmes) means vulgarity.

A NEW REMEDY FOR EPILEPSY?

Two American observers, Dr. H. Houston Merritt and Dr. Tracey J. Putnam, have measured the convulsive threshold to electrical excitation in cats—a threshold which they find remarkably constant from day to day. In the summer of last year they read a paper [1] describing how this threshold is affected by a large number of drugs. Their object was to find drugs that combined the maximum anticonvulsive effect with the minimum narcotic effect. Narcotics proved to be efficient anticonvulsants, but not in subnarcotic doses. Strychnine, even in subconvulsant doses, lowered the convulsive threshold, as did also hydration by Pitressin and water-forcing, and over-breathing of a mixture of CO_2 and oxygen. Bromide, curiously enough, had little effect on the threshold. Phenobarbitone raised it satisfactorily, but still greater success was obtained with other phenyl derivatives of the phenobarbitone type, which combined a higher threshold with a less soporific effect. On the other hand, persistent daily dosage with these drugs failed to maintain the high level, and it dropped to normal within two or three weeks. It was not possible to correlate molecular configuration with efficacy in preventing fits. The investigation dealt only with fits of the major type, but the electro-encephalographic records of these fits induced electrically in cats were similar to those obtained during spontaneous fits in men.

The stage was now set for clinical trial, and Merritt and Putnam have just recorded [2] the results of giving 142 patients a course of treatment with sodium diphenyl hydantoinate, one of the drugs most successful in raising the convulsive threshold in cats. The patients all had frequent attacks, which had proved resistant to bromides, phenobarbitone, and other recognised remedies. The period of administration varied from 2 to 11 months, with an average of 4·3 months. The dosage varied from 1½ to 3 grains three times a day, the drug being given with meals to avoid digestive upset. Under this régime 58 per cent. of cases of grand mal were completely relieved of their attacks, and in a further 27 per cent. there was a substantial reduction. The corresponding figures for petit mal were 35 and 49 per cent. Stoppage of the drug almost always led to immediate return of the fits. In 15 per cent. of the cases toxic symptoms appeared between the third and tenth day. These consisted in nervousness, tremors, ataxia, diplopia, or dizziness, and usually disappeared if the dose was reduced for a time. In about 5 per cent. skin troubles were noticed about the tenth day; they were ushered in by pyrexia, and took the form of simple erythema or of rashes suggestive of scarlet fever or measles, though single cases of dermatitis exfoliativa and of purpura are recorded. These skin troubles called for reduction of dose, or for total discontinuance of the drug.

It looks as if sodium diphenyl hydantoinate is going to be a useful addition to our list of anticonvulsive drugs. But before its value can be properly assessed we must know whether, after longer periods, tolerance is established as so often happens with phenobarbitone. The immediate resumption of fits if for any reason the drug is stopped is a disquieting feature, and the frequency of toxic symptoms suggests that its use should be reserved for cases in which other forms of treatment have been fully tried but found wanting. The possibility of still further toxic symptoms with prolonged use of the drug must not be overlooked.

[1] Merritt, H. H., Putnam, T. J., and Schwab, D. M., *Arch. Neurol. Psychiat., Chicago*, 1938, **39**, 1003.
[2] Merritt and Putnam, *J. Amer. med. Ass.* Sept. 17th, 1938, p. 1068.

A FULL INVESTIGATION

Miss Elizabeth Kenny's methods of treating infantile paralysis, spastic paralysis, and birth palsy at her clinics in Queensland, which had been attracting considerable medical and lay interest in Australia for some years, were investigated two years ago by committees appointed by the Governments of Queensland and of New South Wales. These committees concluded [1] that Miss Kenny's successes were due to the intensity rather than the nature of her system and that as good results would have been obtained by orthodox methods energetically applied. Last year Miss Kenny visited this country and the London County Council invited her to demonstrate her system at Queen Mary's Hospital, Carshalton. Three wards containing 46 beds were set aside for the purpose and a further ward was equipped as a clinic with the necessary baths and other apparatus. Provision was also made for dealing with a few cases as out-patients. Miss Kenny brought with her two of her Australian trainees, and, in addition to the regular nursing staff, five whole-time masseuses were appointed to work under her direction. The unit was supervised by Mr. G. M. Gray, F.R.C.S., one of the Council's officers. The demonstration was first intended to last three months, but was later extended to a year. During this period all early cases of poliomyelitis coming under the Council's care were admitted to the unit, and a total of 63 patients were treated, 8 being cases of cerebral spastic paralysis and 55 of poliomyelitis. Of the latter, 34 were treated within eight weeks of their onset, 12 from two to twelve months after their onset, and 9 were residual cases. The Council appointed a committee consisting of four surgeons and neurologists and the officers of the hospital to watch the demonstration, and these have now issued their report.[2]

The essentials of Miss Kenny's treatment [3] are (1) the maintenance of a bright mental outlook; (2) the maintenance of impulse—i.e., the encouragement of attempts at movement even in muscles which seem completely paralysed; (3) the use of hydrotherapy and remedial exercises; (4) the maintenance of circulation; (5) the avoidance of the generally accepted methods of immobilisation. Hydrotherapy is carried out in slipper baths or special arm baths. Miss Kenny does not approve of communal bathing-pools and exercises are given in individual warm baths with hot and cold douches for stimulation. Muscle re-education is begun as early as possible, even before the cessation of pain. Miss Kenny refuses to use splints at all, but aims at maintaining "natural posture in correct alignment" by constant nursing attention with the help of pads, slings, and boards to prevent foot-drop. The committee report that Miss Kenny has not substantiated her claim to obtain a complete cure in early cases

[1] See *Lancet*, 1938, **1**, 121 and 855.
[2] The report is signed by Mr. H. A. T. Fairbank, Dr. Macdonald Critchley, Mr. E. I. Lloyd, Mr. C. Lambrinudi, Mr. R. C. Elmslie, Mr. G. M. Gray, and Dr. H. O. West.
[3] Infantile Paralysis and Cerebral Diplegia. By Sister Elizabeth Kenny. Sydney and London. 1937.

of poliomyelitis. They have found her methods of hydrotherapy of value, however, and have seen no harm, though no proved benefit, from her practice of giving passive movements and attempting to initiate voluntary movements very early. Although they agree with Miss Kenny that splints can sometimes be dispensed with in the early stages, they consider that splints are often valuable and sometimes essential, and that the mechanical methods which she employs are inadequate. In their opinion Miss Kenny has not really faced the issue of residual paralysis, for which they believe that surgical appliances or stabilising operations and the like offer the only eventual hope of amelioration. As regards cerebral spastic paralysis, the committee found that with her extreme attention to detail and optimistic enthusiasm Miss Kenny had achieved some improvement in the cases treated, but that there was nothing original in her principles.

The committee express a hope that it will be possible to continue the observation of these patients so as to assess their late results, and they suggest that those parts of Miss Kenny's system that have proved valuable might well be incorporated in a scheme of treatment from which splintage was not excluded.

SPINAL ANÆSTHESIA FOR ILEUS

FURTHER testimony to the value of spinal anæsthesia in the treatment of post-operative ileus comes from Salonika, where Astériadès has used it with success in desperate cases. Having previously reported 5 of these, he now describes [1] 3 more, and says he has had no failures. He attributes post-operative ileus to spasmodic contraction of a small segment, followed by paralysis of the whole intestine which is exhausted by its efforts to overcome the obstruction. When spinal anæsthesia paralyses the centres in the medulla of the spinal cord (which he regards as inhibitory) the intestine is under a purely excito-motor influence of the sympathetic ganglia, and accordingly contracts. Astériadès does not make the sequence of events altogether clear, however. At what stage does the local segmental contraction yield—before or after the spinal anæsthesia? He believes it should be quite possible to distinguish clinically between acute spasmodic or paralytic ileus on the one hand, and other post-operative complications, such as peritonitis and mechanical obstruction by a band or by adhesions, on the other. In true ileus, he says, the general condition of the patient is not much affected; the temperature is normal; the pulse, though rapid, is not very forcible; the facies is not the facies of peritonitis; and the tongue is not furred. But though these characteristics help to distinguish the condition from generalised post-operative peritonitis, they do not seem to throw much light on the spasmodic or mechanical nature of the ileus, which is so often the surgeon's immediate problem. One sign described by Astériadès as present in 5 of his 8 cases is a very tight and unyielding contraction of the sphincter ani; he regards it as most reliable evidence of spasmodic ileus, and it is certainly suggestive of a motor disturbance of the intestine. Sometimes it has been associated with a spasmodic contraction of the œsophagus.

In the cases described by Astériadès all the usual remedies, such as enemata, lavage, pituitary extract, and injection of hypertonic saline had failed, and spinal anæsthesia seems to have been used as a last resort. Its induction was always followed within a few minutes by a copious motion of the bowel, and the distension disappeared as if a balloon had been pricked. The ileus had followed such operations as Cæsarean section, hysterectomy for fibroids, oöphorectomy, and repair of inguinal hernia. Similar dramatic results have been obtained by other surgeons using the same method, but probably few of them would be as whole-heartedly enthusiastic as is Astériadès, particularly as there must always be some danger from a fall of blood pressure where a patient is already reduced by excessive vomiting and the shock of the distension. Often, too, hesitation may be felt in ruling out a mechanical cause for the ileus; but here spinal injection may help to decide the issue; for if the bowels act freely and gaseous distension disappears the surgeon is surely justified in holding his hand.

[1] Astériadès, T., *Pr. méd.* July 13th, 1938, p. 1103.

BUNDLE-BRANCH BLOCK

DEFECTIVE conduction in one of the main branches of the bundle of His, or bundle-branch block, is important evidence of cardiac disease, and is demonstrated only by the electrocardiograph. The curves accepted until a few years ago as signifying left and right bundle-branch block have been criticised by the American school, which holds that what was formerly regarded as the picture of right branch block is really left and vice versa. After a full review of what has been written on the subject Yater [1] describes detailed histological studies on six cases of bundle-branch block. The number of cases thus examined is necessarily limited since the complete examination of the conducting septum involves the preparation and scrutiny of several thousand sections from each heart. Yater concludes from his data that, though bundle-branch lesions are usually bilateral, the weight of evidence supports the new rather than the old terminology of bundle-branch block, and he believes that the mistake arose because the earlier interpretation was based on experiments on dogs. As regards atypical curves the classification is still uncertain and much work remains to be done. Transient, intermittent, or functional bundle-branch block is not uncommon and may be taken as indicating organic heart disease. The prognosis in cases where bundle block is found is in general bad, but such patients usually show other evidence of severe cardiovascular disease, and when bundle block is an isolated finding it is compatible with good health over long periods. Borderline curves are often seen which may indicate either extreme ventricular predominance or intraventricular block, and a gradual transition from a form characteristic of ventricular predominance to a form characteristic of branch block is not uncommon, especially in patients with hypertension. Impaired nutrition and stretching of the left bundle-branch probably explain such a change. Relatively little work has been done on the pathological side to explain the several kinds of atypical bundle-branch block curves, but further work such as that carried out by Yater must soon settle the question whether the new or the old terminology is correct for the two classical types of curve.

[1] Yater, W. M., *Arch. intern. Med.* 1938, **62**, 1.

Dr. ROBERT S. AITKEN, reader in medicine in the University of London at the British Postgraduate Medical School, has been appointed to the regius chair of medicine in the University of Aberdeen, rendered vacant by the transfer of Prof. Stanley Davidson to the chair of medicine in the University of Edinburgh.

SPECIAL ARTICLES

MEDICINE AND THE LAW

Dental "Operation" by Unregistered Person

Alexander Miller, a dental mechanic trading as the Rapide Dental Laboratory at Willesden, was fined last week on two summonses alleging an infringement of the Dentists Act. No unregistered person may practise dentistry, and the Act defines the practice of dentistry as including any such operation as is usually performed by dentists. It adds that any person who performs any operation or gives any treatment, advice, or attendance as preparatory to, or for the purpose of, or in connexion with, the fitting, insertion, or fixing of artificial teeth shall be deemed to have practised dentistry within the meaning of the statute. There was evidence that the defendant had been consulted about a broken denture and had fitted a remodelled denture. He had taken an impression, which was an operation of the kind usually performed by dentists. Conducting his own defence, Miller contended that taking an impression could not be dissociated from fitting or fixing artificial dentures and that he had done nothing which he was not entitled to do. For the prosecution it was explained that the 1921 Act obliged the courts to take notice of such infringements. Persons calling themselves by names like the Rapide Dental Laboratory were entitled to repair plates only if they did not come in contact with the persons to whom the plates belonged. Miller was fined £2 10*s*. on each summons and was ordered to pay five guineas costs. He said that he would appeal, and was given 14 days in which to pay.

Mistaken Identity in Mental Hospital

A curious error, such as might at any time occur, is reported from a Surrey mental hospital. Some thirty years ago two women from the same parish in the county were admitted at about the same time to the Brookwood Mental Hospital. Their malady was of the same type; their surnames and their ages were the same. One was known as "Mrs. E. E." and the other as "Mrs. E. E. E." When certain patients were transferred from Brookwood to another institution, these two women were transferred at the same time; they travelled on the same day. Some six years ago one of them died. The clerical entry "deceased" was placed against the name of "Mrs. E. E. E." when it should have been placed against that of "Mrs. E. E." The dead woman had a husband and two sons who contributed to her maintenance. The surviving woman had no known relations. The error meant that the husband and sons paid nearly £100 by mistake for the maintenance of a woman who was an entire stranger to them. It is understood that the Surrey public assistance committee has refunded the money and that a further ex-gratia payment is being made. The recent death of the second woman brought the mistake to light. In institutions containing many hundreds of patients the recurrence of common surnames makes difficulties which great care is needed to avoid.

Presumption of Death

Last week Mr. Justice Langton exercised for the first time the new jurisdiction, conferred by Section 8 of the Herbert Act, of presuming the death of husband or wife and thereupon granting a decree of dissolution of marriage. Like power was given to the Scottish courts under Section 5 of the recent Divorce (Scotland) Act.

The presumptions of law as to the duration of life are various and somewhat vague. If a man is proved to have been alive on a specified date, the law is willing to infer that life continued for some time afterwards. This seems to be part of the general legal presumption of continuance. For instance, though every person is prima facie deemed to be sane, if anyone is proved to have been insane at a particular time, the law will presume that the insanity continued for some time thereafter. This presumption of the continuance of life is quite indefinite; its strength will depend on age, the medical evidence of state of health, and other circumstances. At common law—i.e., judge-made as distinct from Parliament-made law—there was a presumption that, if a man went abroad and nothing was heard of him for seven years by folk who would be likely to hear of him if living, he might be deemed dead. This did not, however, support any legal inference that he died at any particular date—e.g., on the last day of the seven-year period. It used to be said that there was no such presumption of death if a man was merely lost sight of. It was the going abroad that made the difference—a relic perhaps of the dangers which beset a voyage in the days of sailing ships and of the risks to be expected in pioneer settlements. In an eighteenth-century case a judge refused to presume death even after an interval of sixty years. It was a question of reading in court in 1731 the deposition of a witness who had been examined in 1672; if the witness was still alive, the deposition was technically inadmissible because he ought to be called to give his evidence in person; the judge rejected the deposition, there being no evidence of search for the missing man. Nowadays, with communications more rapid and certain, the presumption of death seems more readily made. The absence of news from the absent person is important. Where the person is someone who is not likely to send news (as in a case where a girl of 17 ran away from home and said she was going abroad for good), the courts have refused to regard the absence of news as significant, since no news was to be expected.

The seven-year period has been specially prominent in prosecutions for alleged bigamy, where the usual defence is that the second marriage took place in the bona-fide belief that the husband or wife, not heard of for seven years, was dead. Juries are lenient, and the law places on the prosecution the burden of proving that the accused had guilty knowledge. In none of these situations is there much opportunity for medical evidence to establish physical probability or improbability of survival. There is just a rule of thumb. Nor has medical testimony been encouraged in cases, such as the loss of a ship with all hands, where rights to property may depend on whether one of two passengers survived the other. Here the courts have frankly dismissed the problem as insoluble and have paid no attention to evidence of relative age, sex, or health. A fresh rule of thumb was, however, instituted by the Law of Property Act, 1925 (replacing a clause in the Birkenhead Act of 1922); nowadays, where two persons perish in a common calamity, there is a statutory presumption that the younger survived the older.

RECONSTRUCTION OF QUEEN MARY COLLEGE

THE steady increase in the number of students at Queen Mary College—this session there are 163 new students, 37 of whom are reading for the premedical and first M.B. examinations—is being accompanied by a corresponding extension in the teaching facilities. The buildings, which were opened by the Earl of Athlone on Oct. 12th, complete the second part of a programme of reconstruction that was begun nearly four years ago, when the College took over the ground and buildings of the People's Palace in Mile End-road. The first part provided a new home for the engineering departments and a new chemical laboratory, and the third will include a college hall to replace the old Queen's Hall burnt down seven years ago, the extension and equipment of the physics department and the rehousing of the administrative offices, the provision of a dining hall and cafeteria, and the reconstruction of the students' union and main entrance.

The new block has been erected on the site of the winter garden of the People's Palace. It consists of a basement and four storeys. The basement, in addition to housing the boiler which will heat the whole college, provides much-needed additional accommodation for the students' union, including a general common-room and rooms for meetings, for boxing and fencing, and for the officers' training corps. The ground floor and the first and second floors provide new quarters for the departments of English, classics, modern languages, and mathematics, hitherto inadequately housed in the east block where the College began its life 51 years ago as the East London Technical School. On the third floor are the the new zoological laboratories. The department of zoology has for more than twenty years been temporarily housed in a hut, and, although the staff have shown great ingenuity in making the most of these cramped quarters, a well-equipped modern laboratory will be a welcome asset. In the east block the space vacated by the arts departments has allowed expansion of the departments of botany, geography, and geology, and the beginning of the extension of the physics department which will be completed later. The new block, with its equipment and the consequential alterations in the old buildings, has cost £57,000, a large part of which has been covered by a donation by the Drapers' Company, who have given generous financial support to the College at every stage of its career.

In opening the new buildings the Earl of Athlone reminded his hearers that only a third of the students of the College come from London and the remainder from nearly every county in England. He therefore appealed to benefactors both in London and elsewhere to help the College in the final stage of its scheme of development.

Queen Mary College, showing the new arts and zoology wing which has been added behind the older buildings.

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

MEDICAL DEFENCE

AN encouraging report is produced by the Council of the Medical and Dental Defence Union of Scotland for presentation at the forthcoming (36th) annual meeting of its members in Glasgow. The net increase in membership is nearly double the corresponding figure for the previous year. There is a highly successful record of defence against an ever-increasing number of claims for damages based on allegations of professional negligence. There is a steadily mounting reserve fund, now over £25,000; and there have evidently been profitable changes of investments. The treasurers of defence societies are hard put to it in these days, when gilt-edged securities and fixed-interest stocks seem to be developing a downward trend, to maintain the security of their capital and to keep their resources liquid. This society has, no doubt wisely, been selling its long-dated securities and those which stood over par, reinvesting in short-term gilt-edged in order to minimise the risk of depreciation.

The report presses upon its members some familiar but valuable advice. They are recommended to remember the advisability of obtaining X ray confirmation of diagnosis at the earliest possible moment in all suitable cases. A dentist, for example, performs an operation without satisfying himself of the condition of the root of a tooth by radiography. Afterwards an X ray examination is made and it possibly lends countenance to an allegation of negligence. Only a record of the condition of the root before the work was done could successfully refute that allegation. For want of this contemporary evidence, the claim must be compromised instead of being confidently resisted; and the patient probably continues to believe, and to tell his friends, that he was carelessly treated. This same need of contemporary evidence should also make members careful to keep adequate records of consultations, treatments, appointments, and telephone calls, and indeed general notes of the progress of cases. These are matters which a busy practitioner is easily tempted to neglect. But they are often vitally important in the litigation from which no doctor or dentist can ever be entirely immune. It is better to be wise before the event than afterwards.

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations. Each contributor is responsible for the section for a month; his name can be seen later in the half-yearly index

BY A VOICE IN THE WILDERNESS

IV

LAST week I tried to show that war, like disease, is not a supernatural horror, but a natural if pathological phenomenon. I indicated that it has a definite incidence and, in all probability, a multiple ætiology. To-day I shall examine its clinical picture, prognosis, prophylaxis, and treatment.

* * *

Clinical picture.—Just as disease produces a variety of changes in the many systems of the body, so war involves changes in the lives of combatants and non-combatants, and in the economic and political structure of the countries involved.

1. *Military phenomena of war.*—War may be waged on land, on or under the sea, and in the air, but armies are still the main weapons. The growth of armies is astonishing. The average Greek army contained 10,000 soldiers. The Roman army at the height of the Empire numbered 300,000. The army of Frederick the Great numbered 150,000, while Napoleon's armies at their maxima reached 700,000. Prussia, in the Franco-Prussian war had 1,200,000 troops. By 1934 the world's standing armies had reached 8,000,000. To-day this figure has probably been doubled.

The weapons of war are of two varieties, offensive and defensive. Strategists recognise three qualities in an offensive weapon—mobility, protection, and striking power. A knight in armour possessed all three until guns made his protection inadequate. A tank would appear an ideal offensive weapon. An aeroplane has mobility and striking power, but depends mainly for its protection on speed. A battleship is limited in mobility by its cruising radius from its nearest base.

The old objective of strategy was to disarm the enemy, attack his major force and destroy it. Two views are held about the effect of air warfare. The first is that aircraft will aim at the destruction of the enemy's centres of population, trade, industry, and organisation, and that when these are destroyed or demoralised he will submit. The second is that such a destruction will not be possible until the enemy's air force itself is destroyed. Air offence at present appears more powerful than air defence. But its destructive power has not yet been tried out on a really large scale. To forecast that the limits of offence have been reached would be unwise. Mustard gas would have appeared fanciful to Napoleon, and our high explosives and incendiary bombs may seem like pin-pricks to our descendants. In the history of war, each new offensive technique has led to initial success. Then defence has gradually mastered it and a stalemate has resulted. This has led to war by attrition or starvation. It has been said that the great war was won by the French army fighting the German army, the British navy starving the German people, and President Wilson breaking the morale of Central Europe with propaganda. If it could be assumed that aerial warfare would cancel itself out, the next war would be likely to be one of attrition, victory going to the side which is most nearly economically self-supporting.

Apart from civil wars, there has been a tendency for civilians to suffer less direct military involvement than formerly. Sieges used sometimes to end in the slaughter of all the inhabitants of a fortified town. But air warfare has now to be reckoned with. The new weapons against civilians are explosives, of special value in direct destruction and in breaking open gas-proof rooms, incendiary bombs, and gas-bombs and sprays. Bacterial bombs are a two-edged weapon, as prisoners may carry back infection to its originators. Of the gases, lewisite and the cyanide-arsenic mixtures appear the most popular. In the last war, gas was a relatively humane weapon, as it caused 180,982 British casualties, but only 6062 deaths. But the imagination of H. G. Wells is required to depict the havoc of a seventy-two-hour raid on London, with explosives, thermite, and gas.

The object of a mass attack would be to produce such a state of terror as to compel the Government to submit, not to the enemy forces but to the popular outcry, and to sue for terms. Further, adequate civilian protection would appear to be little short of a complete impossibility.

2. *Civilian phenomena of war.*—Apart from direct military involvement, the civilian population both suffers and gains. Non-combatants suffer from malnutrition, epidemics (the indirect losses of the great war are estimated at thirty million, mostly from influenza, especially in Asia and America), fear, mendacity, credulity, and loss of insight. Their psychological satisfactions I mentioned a week ago. In addition, they gain employment and increased wages. But the cost of living also rises. The effect of psychologically controlled propaganda by radio and leaflet distribution from the air is not known. No doubt both belligerents will make efforts to "jam" each other's radio stations, but the effective "jamming" of very short waves is at present apparently impossible. The civilians of non-belligerent countries are affected by war epidemics, also possible psychologically, as shown by the fall in suicide rates. What would be the civilian reaction to another war? Possibly panic or at least a demand for immediate peace at any price. Possibly blank fury with the enemy and a demand for unlimited reprisals.

3. *Economic phenomena of war.*—It is extremely difficult to estimate the cost of a big war in money. But the importance of money in war may easily be exaggerated. Given an all-powerful government in a self-supporting country, the cost matters little, for wars are waged with men and materials and not money. But to lend money to a belligerent country is a bad investment. Even the best of us default on our foreign war debts. The main economic changes which war produces are as follows. There is a rapid decrease in population. Approximately half of this is due to direct slaughter, and half to disease. In addition, war is always associated with a fall in the birth-rate. There is a rapid increase in production and destruction of wealth. (Wealth is, of course, not money, but goods and services.) This leads to the binding of floating capital, in the form of war debts, and a fall in the standard of living, despite rises in wages. There is a tendency towards nationalisation of industries, also a proportional increase in agricultural production in industrial communities.

4. *Political phenomena of war.*—In the political organisation of nations, a large-scale war always tends to produce absolutism. The executive, especially the executive council or individual head of a government, must of necessity, tend to assume greater power at the expense of the legislature. As a sequel, there follows a decline in individual liberty, culminating in conscription, and a censorship of the written and spoken word. Concessions to the community, in the shape of war loans, as opposed to a capital levy or increase in income-tax, and war pensions, become necessary, especially in democratic countries. The danger of revolution is greatly increased. Workers' organisations know that they have the whip hand in strikes. A future war would

seem likely to end only by the revolution of the panic-stricken or starving population of the losing country.

* * *

Prognosis and end-results.—To those considering war as a possible instrument of policy, one would have thought a scientific study of all possible end-results was a first essential. But long-range planning is a rare human faculty, and in the past science has offered little help to the politician. If those in power knew for certain that a war between two major States offered at least a fifty-fifty chance of their losing power, self-interest might put on the brake. In the Napoleonic and Franco-Prussian wars and in the great war the sovereign most acutely concerned lost his throne and a republican government followed. Territorial results of colonial wars, such as those against the Boers and Abyssinians, may be foretold with fair certainty, but the cost is hard to estimate in advance.

Certain general end-results can be predicted for all major wars. Revolution is usual in the losing State. Monarchies become republics and, from crushing reparations, a new nationalism is reborn. Territorial readjustments occur in favour of the victors, leaving national minorities as sources of future friction. Many of the pathological phenomena of war—the mass suspicions and psychoses, the epidemics, and the debts—continue and may even increase for a time. Economic upsets are inevitable. The disbanding of the war machines leads to unemployment. Reparations, imposed while the war psychoses are still in full swing, and payable only in goods, injure the recipient's industries as much as they do the donor's standard of living.

Who will win the next war? Probably the strongest industrial community or group of such communities. But revolution may come first.

* * *

Prophylaxis.—A rational prophylaxis should be based on ætiology. But before considering what could be done to remove the causes of war, the four prophylactic methods which have been suggested in the past must be examined.

1. *Isolation.*—There are few who now believe that isolation is insulation. Twenty-two nations, including America, were drawn into the great war on the allied side alone, and most of them were not committed beforehand in any way. I quoted last week Wright's observation that, of the fourteen war periods of the last three centuries which involved one or more great powers on each side and lasted more than two years, in only three did a single great power avoid being drawn into war. Victory for the stronger of two great powers breeds fear in adjacent neutrals, so war on the side of the weaker is felt to be a better proposition than war later alone. Britain depends for her food on a complex system of overseas trade. Dominion of Europe by one great power would provide a constant menace to that trade. Isolation appears neither possible nor practical.

2. *Balance of power.*—The wars with Spain, Napoleon, and Germany were balance of power wars. The balance of power is not a method of preventing war, but a method of preventing dominion of one State over the others by means of alliances and war. If we wish to preserve peace, we must not rely on the balance of power.

3. *World federation.*—If this is not universal it tends to become an instrument of the balance of power, operating against non-member States. Its aim is to substitute arbitration for war, and to enforce its decisions by moral sanctions only, economic sanctions, military sanctions, or an international police force. Moral sanctions are of little value unless all members are united in a desire for peace. Economic sanctions are of little value unless no aggressor can be self-supporting and all States are actively coöperating members. Military sanctions are frequently geographically impossible, and, even when possible, can be applied only at the cost of increasing the size of an already existing war. An international police force is as geographically difficult as are military sanctions, and, in the absence of universal membership, could be used as a balance of power weapon. If effective sanctions could be devised, it is urged that the knowledge that they would *certainly* be put into action would be an adequate deterrent from war. This I doubt. Further effective sanctions of any kind are impossible in the absence of universal coöperating membership, and such membership appears impossible to obtain until it is clear that the federation is something more than a machine for maintaining the status quo.

4. *Pacifism.*—Refusal to fight involves continuous unconditional renunciation. The possibility of an adequate number of citizens of any State adopting this as a national policy is remote. As a method of avoiding war it might well be successful. But a squabble between two aggressors could quite easily devastate the pacific country.

As emotional human beings we may feel bound to support one of these proposed methods. As scientists we should bear in mind the defects of each. As scientists, too, we should seek how to remove the causes of war in an entirely unemotional light. We should forget our nationalism or our socialism, our membership of the League of Nations or Peace Pledge Unions. And, having reached our final conclusions, however unpleasant they may be to our preconceived emotional judgments, we should act on them. I must say at once that since our knowledge of the causes of war is incomplete, our suggestions for prophylaxis can be provisional only.

* * *

I suggested that the causes of war are economic, political, and psychological. Prophylactic measures for these causes will be considered in turn:—

1. *Economic prophylactics.*—Economic penetration is only likely to lead to war for the protection of an alien minority. A growth of mutual consideration among the individuals of different nations, and mutual guarantees of alien rights, are perhaps as much as can be hoped and worked for.

In dealing with economic inequality, we must recognise the right to, if not the immediate possibility of, an equal standard of living for the individual members of all States. We should aim at getting as much out of the material resources of the world as is necessary for the good of all. How this is to be done is a matter on which economists are undecided. I would suggest as a first principle that where nature produces a thing easily in one part of the globe, and where transport is cheap and easy, it is not only stupid but socially immoral to waste energy in producing it with difficulty in other parts. Fear of war leads to economic nationalism. Economic nationalism lowers the standard of living of the nationals and of the producers of primary products elsewhere. The fall in standard of living leads to jealousy, and a psychological cause of war is produced. It is our duty to find a way to break the vicious circle. Differential population is a thorny problem. We must recognise the rights of its inhabitants to use the territory of the earth. Climate fits certain races to live most happily in certain territories. We should endeavour to make climate and suitable inhabitants coincide. The political prejudices against such a course are immense. But, failing population control in expanding States, unless these prejudices are overcome, a potential cause of war will exist.

2. *Political prophylactics.*—The provision of an external arbiter between States is, I fear, a matter for the distant future. We see its germs in the League Council. An external arbiter involves the renunciation by all States of their sovereign rights. Such a renunciation is only likely to occur when it becomes clear that the arbiter is both honest and disinterested, and will base his decision not only upon international law, but also upon economic, political, social, and psychological "justice." To attempt to enforce the decisions of any arbiter in the absence of the conditions mentioned above is to court disaster. The balance of power must be abandoned as soon as possible if war is to be avoided. We must substitute coöperation for rivalry, especially with those States who are likely to be our rivals. National minorities are only likely to produce war if they belong to a large power. But minorities of small powers may make a war spread. The principle of self-determination should be applied as soon as possible to all reasonably large minorities. In the self-determination under threat of force which we have watched during the past month, I see not a menace to peace but the removal of a cause of war. War as a "national cement" is a grave danger in non-democratic States. All I can suggest is that the individuals of each State must be allowed to choose their own form of rule and rulers, without outside interference.

3. *Psychological prophylactics.*—Justifiable jealousy can presumably be satisfied. That satisfaction would lead to further covetousness is the argument of the selfish. Only with equality can *cause* for jealousy and selfishness be removed. At present, jealousy and selfishness are being exercised mainly in respect of colonial ownership. Perhaps the most reasonable solution would be the transformation of all colonial territories into mandates, shared equally among the great powers, and administered by them for the benefit of the inhabitants until such time as they are fit to administer themselves. That certain powers are not considered fit administrators by others is, even if valid, no adequate reason for allowing a potential cause of war to exist, for colonial administration can best be learnt by experience. Fear may exist with or without cause. Of its causes, the balance of power and its ramifications is perhaps the most important. A guarantee of justice and security would remove reasonable fear. But national "anxiety states" could still occur. Rulers must realise that energy without adequate outlet leads to morbid emotions, and in their psychological education the medical profession can play its part. The sublimation of the emotions satisfied by war is an almost untouched field. In so far as the herd instinct, excitement, and an object in life are beneficial to the individual, they must be catered for by peace-time activity. Sport may satisfy pugnacity, democracy power, and achievement pride. But peace needs much reorganisation before it offers this satisfaction on such a scale as war.

But psychology can do more than passive prevention by removal of some of the causes of war. It can be used actively to inoculate the people of the world against war. It can find out where such inoculation is most needed. Attitude tests have shown that men who fought frequently in childhood are more favourable to war than those who did not; that people with education beyond high school level are less favourable to war; that people are more favourable to war between 35 and 40 than at other ages; and that men are more favourable to it than women. Psychology can show those who wish to use it how best to suggest, persuade, and educate for peace.

Little has been said of armaments. If there were none, there would be no war as we know it. But the same may be said of nations, or even human beings. Arms limitation saves money but does not prevent war. Differential disarmament is a safeguard to the disarmer but a danger to the disarmed. No formula can satisfy one nation's armament needs except by dissatisfying another's. When the causes of war are removed, the need for armaments, other than for State pageantry, will vanish. Until then, disarmament conferences must be regarded as attempts to postpone rather than abolish war.

* * *

Treatment.—If a big war starts, what is to be done? Should we come in early on the weaker side, or keep out and risk being beaten later? Should we try to apply sanctions against the aggressor and make the war world-wide? Should we try non-intervention and allow the warring parties to destroy each other? Or shall we be a belligerent from the start? My own preference would be for keeping out at all costs—a "rational self-interest" I would call it—others might say "an emotional self-preservation" or even "peace with dishonour." I am reduced to the view that the *only* treatment is prevention.

* * *

If war continues to behave as it has in the past, we can justifiably hope for thirty more years of peace. If a major war is then allowed to break out, it will be difficult for any country to avoid being drawn in. The civilians of belligerents will probably be acutely and immediately involved. They may demand peace, revolt, or proceed to exterminate civilisation. We have, then, at the most, thirty years in which to work out and apply prophylactic measures. These measures can best be worked out by an unemotional scientific approach. Such an approach has begun, but on a small scale only. The immediate need, then, is a university department or institute of war and peace research. Such an institute should be staffed by historians, economists, sociologists, geographers, anthropologists, students of military affairs, psychologists, and statisticians. The researches of this institute should be published in English, French, and German, and given the widest possible publicity. The foundation and support of such an institute would be a more rational procedure than the support of any empirical remedy for war.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 8TH, 1938

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 0; scarlet fever, 1734; diphtheria, 1166; enteric fever, 24 (50 "expected"); pneumonia (primary or influenzal), 453; puerperal pyrexia, 183; cerebro-spinal fever, 14; acute poliomyelitis, 65; acute polioencephalitis, 3; encephalitis lethargica, 5; dysentery, 45; ophthalmia neonatorum, 94. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on Oct. 14th was 2585, which included: Scarlet fever, 697; diphtheria, 987 (carriers, 27); measles, 13; whooping-cough, 209; puerperal fever, 13 mothers (plus 11 babies); encephalitis lethargica, 274; poliomyelitis, 13. At St. Margaret's Hospital there were 21 babies (plus 11 mothers) with ophthalmia neonatorum.

Deaths.—In 126 great towns, including London, there was no death from small-pox or scarlet fever, 1 (0) from enteric fever, 1 (0) from measles, 8 (0) from whooping-cough, 28 (2) from diphtheria, 57 (7) from diarrhœa and enteritis under two years, and 22 (2) from influenza. The figures in parentheses are those for London itself.

Walthamstow reported 2 deaths from whooping-cough. Fatal cases of diphtheria were scattered over 19 great towns, 3 at Birmingham, 2 each at Liverpool, Wallasey, Stoke-on-Trent, and Newport. Liverpool had 8 deaths from diarrhœa, Birmingham 7, Hull 5.

The number of stillbirths notified during the week was 225 (corresponding to a rate of 36 per 1000 total births), including 30 in London.

METROPOLITAN WATER BOARD
THE NEW LABORATORIES

Sir Hugh Myddelton, who brought water to London in the time of James I from the springs at Amwell Magna, in Hertfordshire, was a far-seeing man, but he could never have anticipated that Clerkenwell, where the mark of his enterprise remains in the names of Myddelton-square and Amwell-street, would come to be the site of one of the greatest centres of water examination and research in the world, watching over the water-supply of millions of people living in "Water London." The new £85,000 laboratories, which were opened by the Minister of Health on Oct. 17th, form an imposing memorial not only to Myddelton but to the two men who made London's water safe in spite of its readily contaminated sources. Sir Alexander Houston devoted the greater part of his life to this object, and though his successor, Colonel Charles Harold, was not long in office he contributed largely to the perfection of water examination and it was he who planned this new building.

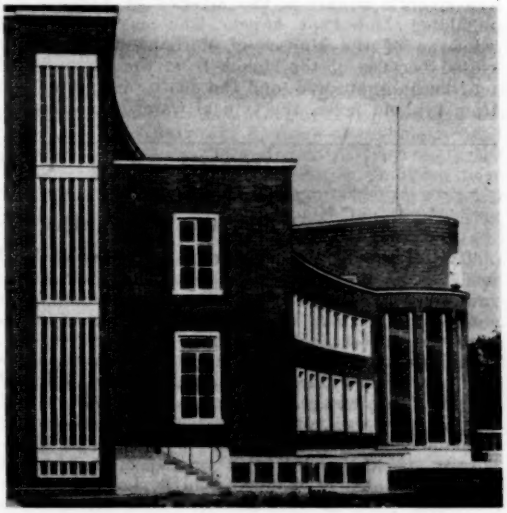


FIG. 1.—The new laboratories from the west.

Mr. J. M. Easton, the architect responsible for the design of the new laboratories, has arranged them on what appears to be rather less than an octant of an annulus (Figs. 1 and 2), thereby securing about 30 feet more of north aspect on the outer arc. The building is faced with a pleasant reddish-brown brick, with Portland stone dressing. The basement floor contains the air-conditioning plant and compressor, spare laboratories, cool rooms, stores, and the like. Rooms for the director and administrative staff and the library occupy the south rooms on the inner arc of the ground floor, whilst biology, biochemistry, photography, and bacteriological research are provided for on the sunless outer strip. The first floor contains the main bacteriological laboratories and incubators, and the rooms for preparing, sterilising, and storing culture media (Fig. 3). The southern half of the top floor is occupied by a flat roof, and the northern half by the chemical laboratories and distillation apparatus.

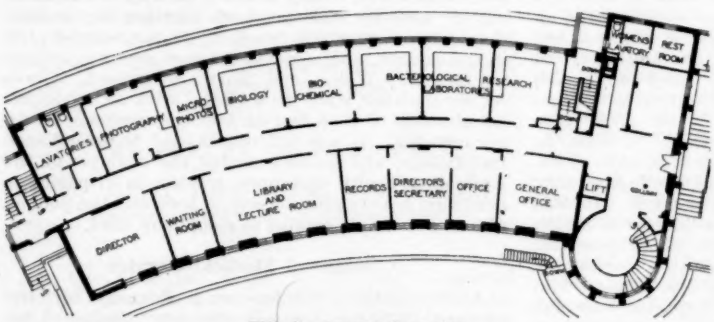


FIG. 2.—Ground floor plan.

High pressure, softened, and hot water supplies are laid on, as well as compressed air, vacuum, high and low pressure steam, distilled water, and direct and alternating current for light and power. Artificial daylight fittings are provided in all working laboratories and the incubators are rooms, not boxes, kept at the proper temperatures for various purposes. Many new materials have been used for construction or fittings, including stainless steel and monel metal. Most of the floors are of rubber. Although gas has mainly been replaced by steam or electricity in the interest of atmospheric purity, distillations for ammonia in water will still be done in naked flasks over a Bunsen flame to ensure regular boiling.

In his opening speech Mr. Walter Elliot remarked that modern man depended almost as much on pipes and wires outside his body as on arteries and nerves inside it. The new laboratories were, so to speak, one of the ductless glands by which

FIG. 3.—The media sterilising room.

the gigantic stream in the arteries of London was regulated and kept sweet. The days when the windows of the Houses of Parliament had to be closed because of the stench from the Thames had now long disappeared, and the death-rate per million from typhoid fever, the typical water-borne disease, had fallen from 235 in 1875 to 53 in 1905 and to 4 in 1937. The water examination department was begun in 1905 and it was safe to say that the existing high standard of purity depended very largely on the daily examinations and continuous research carried out at the Board's laboratories and works.

PANEL AND CONTRACT PRACTICE

The Survival of Insurance Committees

THIS is the month when representatives of local medical and panel committees meet for their yearly review of national health insurance administration (to be reported next week) and associations of insurance committees hold their annual conferences. Mr. Joseph Cave, presiding at one of these, discussed the position of insurance committees in the light of 25 years' experience. Though their abolition had been urged from various quarters, and was indeed recommended twelve years ago by the Royal Commission on National Health Insurance, he thought that no scheme of medical benefit, however much extended, could be operated so effectively through any other agency. Yet the committees had not taken that place among the health agencies of the country which was expected at the inception of the health insurance system. The Act of 1911 was hailed as a measure for the prevention as well as the cure of sickness; it was contemplated that through the agency of the newly created insurance committees an extensive health propaganda would be initiated and strenuously developed. But very few had exercised their powers under the Act to carry on health propaganda; certainly they had had little encouragement, financial or otherwise, to do so. But more might have been done, and might still be done, in this direction in coöperation with the local authorities. He referred to the substantial reductions in mortality since the insurance system was started. It was difficult, he suggested, to reconcile improved health of the community with rising costs of sickness and disablement benefit. In his view much of the money expended in these benefits was paid to persons who though producing certificates of incapacity were not in fact incapable of work. Insurance committees could not disclaim some measure of responsibility for lax certification; some, he thought, took too lenient a view of the failure of practitioners to fulfil their obligations and recommended inadequate penalties for proved offences. But the rising cost of sickness and disablement benefit was a complicated problem in which the carelessness of some insurance practitioners was only one factor among many.

The Future of Health Insurance

Speaking as president of the Scottish Association of Insurance Committees, Mr. James D. Wyllie reviewed various proposals put forward for the development of the health insurance system. There was, he said, general agreement on two points: (1) that medical benefit should be extended to the dependants of insured persons, and (2) that the insurance medical service should be strengthened by the inclusion of consultant, specialist, and pathological services. But the question which of these two reforms should be given priority, assuming that both could not be accomplished at the same time, had been a matter of controversy. In Mr. Wyllie's view it is politic to press for what can more easily be got; the line of least resistance is, he thinks, in the direction of extending the present range of medical services. For this extension no additional legislation was necessary; in 1914 a scheme of extended services was prepared by the Insurance Commissioners and the necessary money voted by Parliament. The extension would enhance the efficiency of the medical service and reduce the period of disablement. He cited a patient who had for eight years been mistakenly treated for pernicious anæmia, no laboratory examination having been made, and had, quite uselessly, consumed about £200 worth of liver extract. It was unnecessary to ask the taxpayer to finance the extension; the surplus at the disposal of approved societies was adequate to defray the whole cost and still leave a large sum to be distributed in additional benefits. The surplus at the fourth valuation amounted to over £20,000,000, and the position was likely to be even better when the fifth valuation was completed. The amount of surplus per member varied, however, widely between the societies. Taking all the societies with surpluses together the average disposable surplus was nearly £1 6*s*. per member, but in one society, with a membership of over two million in England, Wales, and Northern Ireland, it was 8*s*. per member, while 19 societies with an aggregate membership of 1316 had an average surplus of £6 6*s*. per member. It was difficult, he said, to defend such inequalities, and he commended the example of the Australian health insurance scheme in requiring a minimum society membership of 2000 and the pooling of half a society's surplus in a common fund.

A National Medical Service

At the National Conference of Friendly Societies on Sept. 22nd Sir Henry Brackenbury explained the British Medical Association's scheme to provide a full medical service not only for the insured persons and their dependants but for all who are unable to provide adequate medical care for themselves. The scheme is elastic. It might have as its centre the hospital, the local government authority, or the general medical practitioner; and he thought that if any one of the three was to be predominant there would be widespread agreement that it should be the general practitioner—the family doctor. There was elasticity also in regard to the method of providing and financing the medical services. The provision might be made on what he called the "medical benefit" method—namely, that adopted in the insurance system, by which every qualified practitioner has the right to participate in the service, and the patient the right, within limits, to choose and change his doctor. Sir Henry favours that method, but he pointed out that under the scheme the medical practitioners might be whole-time salaried officers forming part of the civil service. Again, the scheme might be financed on the insurance method, the beneficiaries paying contributions, or from taxation, local or central. He thought that, though the scheme involved formidable problems of finance and administration, the fundamental changes required to bring the proposed medical

service into being were relatively small, and that if it were not for the enormous expenditure entailed by international difficulties Parliament would be prepared to implement such a scheme. Mr. Stanley Duff, secretary of the conference, thought it would take a longer time than Sir Henry appeared to contemplate to bring so comprehensive a scheme into operation, and he regretted the rejection of the more modest but more hopeful proposal to extend medical benefit by the inclusion of improved diagnostic facilities and consultant and specialist services. There can however be no question that the B.M.A. scheme merits wide discussion. The provision of adequate medical care for those unable to provide it from their own resources is claiming increased consideration in most English-speaking countries. It is a world-wide problem.

Treatment "in respect of" a Confinement

We commented a few months ago (*Lancet*, 1938, 1, 1078) on the case in which an insurance practitioner maintained that "treatment in respect of a confinement," which is specifically exempted from the terms of service, includes antenatal attention given in at any rate the later stages of pregnancy. To test his opinion the doctor made a charge for certificates to two of his insured patients who were well advanced in pregnancy. The insurance committee however found that a pregnant woman is entitled to treatment from her insurance practitioner up to the onset of labour after 28 weeks or more of pregnancy, and that the phrase was intended to cover merely the confinement itself and any condition resulting from it during the following ten days. The practitioner appealed to the Minister of Health but the Minister agreed with the insurance committee's reading and has now dismissed the appeal. One point that the doctor made merits attention. He argued that National Health Insurance is essentially, as its name implies, an insurance against ill health, and a confinement is not a condition of ill health. But monetary benefit under the Act may be paid to an insured patient who is rendered incapable of work by "bodily or mental disablement," which certainly covers a confinement, so that the provisions of the Act are clearly not limited to actual ill health.

OPENING OF THE MEDICAL SCHOOLS

THE autumn session at Guy's Hospital was inaugurated on Oct. 14th instead of on Oct. 7th as originally planned. Extracts from Sir Henry Dale's opening address are printed below. General MacArthur spoke at the Welsh National School of Medicine on Oct. 7th. From his address we reproduce parts of the section dealing with plague.

THE FUTURE OF MEDICINE *

BY SIR HENRY DALE, C.B.E., F.R.C.P., F.R.S.
DIRECTOR OF THE NATIONAL INSTITUTE FOR MEDICAL RESEARCH

IF the blow had fallen which was threatened shortly before the date, Oct. 7th, originally fixed for this occasion, medical men, happier in this than many, would have been called to continue the service which their training had equipped them to render to their fellow men; it might have been rendered under conditions of almost unbearable stress and difficulty, but it would have been essentially the service which still makes too large a part of ordinary medical practice—the attempt to relieve or to cure sufferings inflicted by mankind upon itself, by man's wrongdoing, folly, or indifference. Now, with the knowledge that this terrible danger to humanity has, for the time at least, been averted, and with a determination, I hope, to do whatever lies in our power to prevent its recurrence, and to answer the call if it comes, we can look forward with renewed hope to a future of normal progress. It should be of interest, to you who are entering upon careers devoted to the acquisition and use of medical knowledge, to try to form some idea as to the future of this medicine with which you will be concerned.

I shall have little to say on the future of medical practice or medical politics. Many years ago a particular group of examiners were led, indeed, to certify me as qualified for the high responsibility of medical practice, but the soundness of their judgment was never put to the test of experiment. Opportunity and natural inclination took me away from the bedside to work in a laboratory, and there I have remained. I am not disposed to apologise for a life so spent, holding it not an unworthy aim to endeavour to extend or to strengthen some part of the scientific structure which the fabric of medical knowledge requires. Medicine will always need a succession of recruits for the research branches of its service, and I hope there may be some among you. You will find better organised opportunities for such work than we who graduated when this century was beginning. In particular, there is a growing recognition of the fact that, while its foundations require constant renewal, extension, and reinforcement from the results of research over the whole range of the natural sciences, the main fabric of medical knowledge cannot grow without the direct investigation of human diseases and ailments as such, by men specially trained in the methods of research, and prepared to make it their life's work. Research is hard and exacting, and the rare rewards which it offers are not those of material success. If any among you have the true vocation for the life of research, you will find, as I have said, that recent years have greatly widened the opportunity for it. The public conscience and enlightened private generosity, in this country, are awakening to the fact that the health and happiness of mankind are promoted by the growth of medical knowledge through research, and not merely by means for the immediate application of what is known to the relief of illness which, only too often, has already passed beyond the reach of remedy.

It seems certain that the future will show an acceleration of the change, already in progress, by which the activities of the individual practitioner in preventive medicine are supplemented, supported, and to some extent directed, by the organised use of medical knowledge on behalf of the community. This shift in the aim of medical effort from cure towards prevention has been made possible by, and presents only one aspect of, a change which seems to me to be much more fundamental. Its beginnings

* This address will be published in full in the *Guy's Hospital Gazette*.

are to be found, in retrospect, some 60 or 70 years ago, when Europe was witnessing an extraordinary outburst of activity in what we now call the medical sciences, notably bacteriology and physiology. But this remarkable renascence had been in progress for some years before it began to produce a serious effect on practical medicine—an effect longer delayed in this country than in some others, and indeed not fully felt until the present century had passed its first decade. Medicine, of course, was advancing before this experimental era, at the hands of men who had learned, at the bedside and in the autopsy room, an exquisite acuteness of direct observation which is unlikely to be found in such perfection in those who have modern instrumental aids. I should be the last to belittle what medicine owed to the clinical and pathological observations made, in the earlier part of the nineteenth century, by men like those whose discoveries have given such lustre to the record of Guy's Hospital in that period—Richard Bright, Thomas Addison, Henry Hodgkin, William Gull. Yet at that period medical knowledge could only advance by rare and irregular steps; and, if we had a scale of measurement for such things I believe that we should find that medical knowledge has advanced, and practice changed with it, more in the past few decades than in several centuries preceding them. A few instances, from the period covered by my own experience, may serve to illustrate what I mean.

In a book, rich in shrewd and humorous wisdom, entitled "The Horse and Buggy Doctor," Dr. Arthur E. Hertzler recalls, as his first introduction to the tragedy of disease, 60 years ago, the words of his father at family prayers—"Protect us, O God, from diphtheria"; it was a general feeling of human helplessness in face of that dread enemy to child life that found voice in the petition. I myself can just recall the tragedy of deaths from diphtheria in neighbours' families, and the suspicion of faulty drains as representing the highest flight of medical speculation concerning its ætiology. The first successful inroad of immunology into practical therapeutics was the application, some years after the discovery of the Klebs-Löffler bacillus, of diphtheria antitoxin in the treatment of this disease. Protection by active immunisation, with the neutralised or modified toxin, only began to find practical application some twenty-five years ago, and has since been made much more effective. To see what can now be done by the systematic immunisation of a whole population you must look beyond your own country, though not outside the British Empire. In Ontario the need for antitoxin to treat diphtheria has been rapidly declining, as the immunisation of school-children with toxoid has become established, until they are now within sight of the position in which diphtheria will have ceased to count as a threat to the child life of that progressive community. Am I wrong in foreseeing that an important part of your duty as medical men will be to educate yourselves, and the public opinion which will look to you for guidance, so as to ensure that the benefits of such saving knowledge are secured for those whose health will be in your care? The same principle of active protection, by use of a modified toxin, is now being successfully applied in tetanus.

Another recent and dramatic change is that in the picture of diabetes mellitus since insulin came, some 16 years ago. Its discovery did much more than transform the treatment of diabetes; it gave an enormous impetus to researches on hormones in general. Look what has happened since. Active hormones have been obtained from the parathyroid glands, from the suprarenal cortex, from the different gonads, and, a whole series of them, from the pituitary anterior lobe. From liver and from stomach mucosa materials have been extracted, the administration of which restores to the victim of pernicious anæmia the factors missing from his blood-forming system. Insulin has been crystallised, thyroxine has been prepared by complete synthesis, while several of the sex hormones and that of the suprarenal cortex have been obtained as pure, crystalline substances, structurally identified, and even prepared artificially by partial synthesis from different sterols. And twenty years ago we were still wondering whether any of these substances had a real existence. Note, also, the degree to which organic chemistry, which began as the chemistry of the products of life, but had spread into fields having little direct relation to these, is now returning with new powers to its original objective, and becoming a powerful agent of medical progress.

We can find many points of similarity in the recent history of progress in dietetics. At the beginning of the century we talked about proteins, fats, and carbohydrates, and had some knowledge of the energy requirements of the body; but ignorance of qualitative dietetics was a reproach to medical science, and medical advice on diet provided a fair target for the layman's humour. We first began to hear of definite evidence about essential accessory or protective factors in a diet, the so-called vitamins, about 1912. Gradually their multiplicity was recognised, and they were distinguished by their different functions and general chemical properties. Here again, however, twenty years ago, it was still possible to think of them as intangible traces of substances which might never be accessible to exact chemical study. Yet, beyond all reasonable expectation, seven or more of them have now already been separated in pure form, structurally identified and, the organic chemists again giving aid, prepared artificially by synthesis; and there are others, I believe, in near prospect.

These three examples illustrate not only the breath-taking speed at which exact knowledge has advanced in recent years, but the way in which research is providing new conceptions of ætiology, and new resources for treatment based directly upon it. One of the most important changes in medicine in the period which my memory covers is the emergence of medicinal treatment dealing with causes, and not limited to the palliation of symptoms. When I entered the medical wards as a student I was astonished and depressed to discover how few prescriptions were written with any clear confidence in a real effect on the disease. Who would have ventured then to predict the day when it would become possible, by the use of natural remedies, to make a whole population resistant to diphtheria infection, or practically to abolish rickets in the children of a modern city, or to restore the hormonal defects in the diabetic and the sufferer from pernicious anæmia, so as to enable them to live almost normal lives?

The same kind of change is perceptible, I think, in the therapeutic use of artificial chemicals and substances unnatural to the body. Treatment of symptoms is, of course, not without its own importance; the patient himself is likely to be more concerned for the relief of his pain or discomfort than for the identification and removal of its cause; and such relief is often, in itself, an important factor in his recovery. Synthetic chemistry has done a real service to medicine in producing new, and sometimes more effective, symptomatic remedies; though we could wish that they were not offered in such bewildering and redundant profusion, and may suspect that many of them are pressed on our notice without any proper ground for believing them to be better than others of like action. Of much greater significance for the future, in any case, is the fact that synthetic chemistry is also producing artificial remedies which deal with causes. Till quite recently this new chemotherapy had triumphs to record in the

cure of diseases due to protozoa and of spirochætal infections; but there had been little to encourage a hope that it would ever be possible by such means to combat infections by ordinary bacilli and cocci. And then, only three years ago, came Prontosil, and its active moiety, sulphanilamide, and the brilliant new prospect, thus opened, of the successful treatment of conditions due to infections by streptococci, such as puerperal fever and erysipelas. Here was a fresh starting point, for the quest of new compounds which would directly combat infections by other kinds of cocci and other bacteria; and already one relatively simple derivative of sulphanilamide is on promising trial for the treatment of lobar pneumonia. Synthetic substances are coming to hand which deal radically with the causes of disease, and do not merely modify or moderate the resulting symptoms. And this is a change, only now becoming effective, which seems to me certain to continue and to become more rapid in the future. The future which I foresee for medicine is one of continued and accelerated development into an experimental science. Some regard such a change as deplorable, holding that the personal touch and intimate sympathy between doctor and patient are doomed, or threatened. I recommend you not to take such jeremiads too deeply to heart. Surely there could be no firmer basis for confidence between doctor and patient, than a shared conviction that medicine is advancing as a science, and that its growing resources are being used to the full in discovering and treating the cause of the trouble. The problems before us are how to adapt the limited time available for study, whether before or after qualification, to the rapid expansion of knowledge; and how to organise practice so as to make the results of research generally available in diagnosis and treatment.

I suspect that some of you may presently be inclined to say to one another that all this talk about the progress of medicine by research will have little relation to a general practice, dealing largely with imaginary ailments in people of the type described by the late Prof. Huxley as elderly females of both sexes. Admittedly there will always be a delay in the application to ordinary practice of the new resources of knowledge and of method which research in the clinics and the laboratories produces. Indifference may make that delay too long, but uncritical and competitive eagerness may as easily make it too short. Sooner or later, in any case, the new weapons of science will come to your hands; and one of the most important developments which I hope that the future will see, is the intelligent and enterprising use of the new knowledge by the man in ordinary practice, enabling him to retrieve, from the limbo of "imaginary" ailments, many minor hormonal and dietary deficiencies, many chronic reactions to latent infection, and many partial failures in factors of normal function yet unrecognised, which future researches may reveal. If we can thus look forward to the time when the man in ordinary practice will be able to recognise, anticipate, and deal with the causes of vague and chronic ailments which bear no diagnostic labels and seldom reach the hospitals, then, indeed, I believe that the future of medicine is bright with the hope of better service to the health of mankind.

NAVAL MEDICAL COMPASSIONATE FUND.—At the quarterly meeting of the directors of this fund, held on Oct. 14th, with Surgeon Vice-Admiral P. T. Nicholls, medical director-general of the Navy in the chair, the sum of £164 was distributed among the several applicants.

OUT OF OLDË BOKËS

BY LIEUT.-GENERAL W. P. MACARTHUR, C.B., M.D., F.R.C.P.
DIRECTOR-GENERAL OF ARMY MEDICAL SERVICES

I MUST first explain that owing to the international crisis I found my time so fully occupied when this address should have been in preparation that I have been forced to compile it from records that I have already used elsewhere.

The advance of medicine in Europe along any scientific lines came to an end with the eclipse of the Greek medical learning about the year A.D. 200. Up to about the year 1500, official medicine in Europe was of the formal and scholastic type, bound by tradition and showing little sign of originality. This formalism and sterility of official medicine in the fourteenth century was evident in its reaction to that universal epidemic of plague that to-day is commonly called the Black Death. Most text-books state that the Black Death was given this name because of the black blains and tokens in the skin; even the scholarly Osler falls into this common error. But the word "black" here translates the Latin *ater*, that is "black" in the sense of terrible. These skin signs are mentioned by many of the contemporary chroniclers and the word they use to describe their colour is always *niger*, and never *ater*. The skin lesions are *niger*, but the pestilence itself is *ater*.

For the benefit of any here whose medical studies have not progressed very far, I would point out that plague in man is always an extension of preceding or concurrent plague affecting the lower animals, most often rats. When the body of an infected rat becomes cold just after death the fleas desert it and seek for new hosts.

The flea is an effective carrier of plague by reason of an anatomical peculiarity. Joining the œsophagus to the stomach there is an organ, the proventriculus, a kind of gizzard, lined with chitinous teeth. These teeth come into apposition during digestion and so prevent the blood from regurgitating into the œsophagus; the barrier is so efficient that if one dissects out the stomach of a flea containing blood, and applies pressure from behind forwards, the stomach is ruptured before any blood is forced back through the proventriculus. When a flea swallows blood containing plague bacilli, some of them get caught in the proventricular teeth, and may multiply to such an extent as to set up a complete obstruction preventing the blood swallowed from passing into the stomach. The unfortunate insect suffers severe pangs of hunger, and by means of its powerful sucking muscles tries to force the blood past the obstruction, but only succeeds in dilating the œsophagus with blood under high pressure. When the insect tires of its fruitless efforts, and relaxes its sucking muscles, the blood is ejected from its mouth on to the skin of the host, carrying with it bacilli broken off from the obstructing mass.

In man, the bacilli then pass through the skin and along the lymphatics, and set up an inflammation in the first group of lymphatic glands they encounter, most commonly those in the groin. For this reason these inflamed glands were called "buboes" from the Greek word for the groin. Whence we speak of "bubonic" plague. Buboes are commonly found also in the axilla and in the neck. Other external signs in plague are carbuncles, blains, and tokens, but these appear to be less common in plague to-day than they were in old times, possibly because the infections then tended to be more intense. The plague carbuncle commences as a small patch of inflammation in the skin, the affected area increasing in size and becoming gangrenous. The blains—we have the same word in

"chilblains"—are small blisters, black or white in colour. The tokens are hæmorrhages into the skin, and are of very grave significance. Shakespeare speaks of "The tokened pestilence where death is sure," and declares again, "The death tokens cry, 'No recovery.'" Boghurst, who wrote by far the best clinical account of the London plague of 1665, calls tokens "The forehorses of Death's Chariot," and says again that they are sent by God to warn the sufferer "that hee is now steering out of the river into the ocean, out of this narrow compass of tyme into the wide ocean of eternity."

In intense infections the patient may be overwhelmed by the virulence of the attack, and die before buboes are seen externally. Such cases without apparent buboes are called "septicæmic" in the convenient clinical grouping. Sometimes the plague bacillus attacks the lungs, and sets up a virulent and most fatal pneumonia. This pneumonic plague differs in one important essential from ordinary plague, for it is intensely infectious from person to person, and having begun it may assume epidemic form and spread independently of rats and fleas.

From this it is evident that plague is not a disease of primitive man leading a nomadic life, but affects populations sufficiently civilised to build themselves towns, but not civilised enough to keep them clean, and who in consequence share their dwellings with rats and fleas.

As regards these islands, the Black Death broke out in Weymouth in August, 1348, and raged for over a year in the form of recurring epidemic waves. About half the population was destroyed. The English monastic chroniclers, Henry Knighton and Gilbert le Baker, and the Irish Franciscan, John Clyn, describe clearly the buboes, carbuncles, and other plague signs, and thus put the identity of the pestilence beyond all question. The professional physicians have left us no such chronicles. John of Gaddesden, and other notable physicians, flourished at the time but they were shackled by tradition. In the writings of the Fathers there was no word of the Black Death, and so their disciples sat silent while the greatest calamity that has ever befallen mankind unfolded its course before their eyes.

The surgeons of the day were of a different caste, less soaked in scholasticism. One of them, Guy de Chauliac, tells us that plague is a corruption of the body, as is evidenced by the formation of internal buboes and that it is through the external buboes in the neck, the axilla, and the groin that the poison affecting the brain, the heart, and the liver is discharged. The most intense form of plague is thus caused by the failure of the body to form external buboes. Such is the ingenious explanation of the differences observed in the symptoms and severity of bubonic and septicæmic plague. The theory of the body successfully throwing off its corruption through the external buboes was supported by the sound clinical observation of the favourable prognosis in plague when the bubo suppurates.

Guy de Chauliac practised in Avignon, where the Black Death began in January, 1348, and lasted for seven months. For the first two months, he says, the disease was of the type without external buboes, and was characterised by continued fever, blood-stained sputum, and death in three days. For the succeeding five months buboes were the outstanding feature, and death ensued within five days. The physicians were useless, for all the sick died except those with suppurating buboes. Guy himself contracted plague, but the protection afforded by this attack did not suffice to preserve his life when plague broke out again in Avignon twenty years later. There has long been a difference of opinion as to the best surgical treatment in cases of plague—whether the bubo should be incised early, or left alone until pus is present. During the Black Death the common custom was to open the buboes early, or even excise them. Guy condemns both these practices, advising the application of fomentations. When the buboes are mature, those in the groin and axilla are to be opened in a semilunar fashion, and those in the neck by a straight cut. I think that the weight of medical opinion to-day is on the side of Guy de Chauliac. He lays down general surgical principles which are worth our consideration to-day. The surgeon must be daring when on sure ground, but cautious in danger, and turn aside from false cures and practice. He must be gentle with the sick man, considerate to his friends, wise in his predictions. He must be chaste, sober, pitiful, and merciful; not greedy, nor covetous of gold, so that he may receive a reasonable recompense according to the standing of the patient, the issue of the case, and his own dignity. But it appears that even these manifold virtues may go for naught, for, says Guy, there is a class of women and of idiots—a strange conjunction—who refer all their maladies to the saints, reject human help, and rely on divine intervention.

In the writings of Elizabethan and early Jacobean poets some of you may have chanced on a mention of a lost art of anæsthesia, and you will find the forgotten anæsthetic and the method of its use described by Guy de Chauliac. Opium is taken and mixed with the juice of nightshade, hyoscyamus, mandrake, ivy, lettuce, and hemlock. Soak a sponge in this mixture and dry it in the sun. When required for use the sponge is placed in boiling water, and the fumes inhaled by the patient until he pass under their influence. Then, says Guy, the incision can be made without pain. After the operation another sponge soaked in vinegar and applied to the nostrils will bring the patient to himself. So that, contrary to the popular belief, general anæsthesia as an aid to surgery was not first introduced in the nineteenth century.

Ambroise Paré in 1579 wrote at great length on plague, and as a warning of an impending epidemic he points out that wild animals may be seen deserting their haunts, while others are found dead in their burrows, or lying about the fields, killed, as he explains it, by the plague vapours fermenting in the ground. He says nothing however of those old experimentalists who, observing that persons recovered from plague were less likely to contract a second attack, prepared from excised and dried buboes what was in effect a crude plague vaccine. This they administered by the mouth to persons particularly exposed to infection, and they were persuaded that a high degree of protection was given thereby. On one occasion in a country where plague was widely epidemic I was called in consultation to see a European girl who proved to be suffering from plague. She showed one bubo only, in the neck, and it was peculiar in that there were no signs of inflammation—redness, heat, tenderness, or pain—except the puffy swelling. She did not appear very ill and the family doctor and myself felt justified in giving a cautious but hopeful prognosis, as we had both seen patients recover who seemed more seriously ill. But the girl suddenly took a turn for the worse and died within a few hours. I was much puzzled by the character of the bubo and looked up all the text-books and monographs available, and questioned many persons familiar with the disease, but could learn nothing regarding buboes of that type, until I found it described by Ambroise Paré. In a section on the prognosis of plague according

to the characters of the buboes, he points out that it is a good and salutary sign if the bubo be red in colour and increase little by little; but if it be livid or black and come very slowly to its just bigness, it is a deadly sign. Also it is a deadly sign if it increase suddenly with a swift violence. While buboes that are of a natural colour, and in all things like unto an œdematous tumour, suddenly bring the patient to destruction.

There is some leaven of truth in Chaucer's lines :—

"For out of oldē feldēs, as men seith,
Cometh al this newē corn from yeer to yeer;
And out of oldē bokēs, in good feith,
Cometh al this newē science that men lere."

CORRESPONDENCE

HONORARY APPOINTMENTS FOR SALARIED PSYCHIATRISTS

To the Editor of THE LANCET

SIR,—It is deplorable that at a time when at last there is something like a rapprochement between psychiatry and the rest of the field of general medicine, an attitude of mind smacking of schism should be manifest amongst psychiatrists.

I have seldom read a more ludicrous suggestion, and one more inimical to the best interests of medicine, than that of your correspondent, "Psychiatrist," who has the audacity to suggest that appointments at teaching hospitals should be restricted to those who are not in the actual practice of diagnosing, treating, and in their daily life dealing with the major psychoses in their various aspects. Does he seriously suggest that the appointment of a man to a teaching post should be determined by whether or not he already has an income of £1000 or £2000 a year? Does he really mean that because a man is able to earn something approaching a comfortable competence, he should be debarred from teaching or from earning any more, no matter how great his teaching skill may be? What a situation would arise if this criterion were applied to any other branch of medicine.

Although your correspondent strongly objects to those of us in the mental hospital service applying for teaching posts, I take it that he would have no objection to some of our bright young psychoneurologists, as it were, applying for posts in the mental hospital service proper. Not that I would have any objection myself; indeed, I would welcome it, for some of them might then gain experience of such important matters as being asked to deal in an emergency with a case of epileptic furore, or to advise as to the capacity for estate management of an arteriosclerotic, or to take the practical steps necessary for the restraining of the activities of a difficult paranoiac, all of which, Sir, are situations which may arise, and do arise, almost daily in consulting psychiatry, but for which I am not aware that a training in psychotherapy is any particular advantage, or that a sound grounding in the mental hospital service is any disadvantage.

There are many things which your correspondent would appear not to know. One of them is that outside of London it is probably impossible to make a living at consulting psychiatry without the backing of a salaried appointment. Another important factor apparently not within his knowledge is that probably the greatest contribution in recent years to the dispelling of prejudice and fear in regard to mental illness, as well as to the raising of the standards of medical work in our mental hospitals, is the close liaison which exists in many places between the local mental hospital and the local voluntary general hospital, including provincial teaching hospitals, there being in fact almost an interchange of appointments. Does he suggest that we should destroy this liaison; that years of fighting against heavy odds should go by the board, simply because someone who wants to be a teacher cannot get a job? If you disrupt this liaison, who is going to do the teaching in the provincial centres? Is it proposed to import men experienced in dealing with the psychoneurotic carrying out his well-known act of crying out for treatment? (He doesn't, you know.) If so, who is to pay them?—the unhappily burdened provincial universities, one supposes. This would, of course, achieve "Psychiatrist's" desired object of driving the mental hospital men back into the obscurity of their bolt-holes in the asylums, but it would be a pitifully inadequate contribution to the progress of medicine.

No, Sir, I fear that the schematically attractive proposals put forward by "Psychiatrist," however seductive they may be as a paper contribution to the economics of consulting medicine, so bristle with the possibility of creating absurd situations that they just won't do. Do not forget that not so many years ago the mental hospital was the centre of psychiatric activity, and most of what is good and enduring in our knowledge of psychiatry has come from those who were in everyday mental hospital practice. The clinics and movements and so forth that have sprung up in attachment to the word "psychology"—valuable though many of them undoubtedly are—are but the fledglings of the old bird, and in any case they deal with only one section of mental illness, and by no means the most important one at that. Moreover, the present-day mental hospital, with its almost invariable ancillary out-patient clinic, is rapidly becoming quite competent to deal with the psychoneuroses. Does "Psychiatrist" think that we do not do any psychotherapy in the mental hospitals?

If you interfere with the free choice of doctor, if you interfere with the making of appointments on merit, and above all, if you interfere with the teaching of students by those whose daily work and experience fits them for teaching, you are doing nothing but a gross disservice to medicine and to human happiness.

The younger generation, of whom, alas, I can no longer count myself one, are growing up in such an atmosphere of security and shelter, and rules and regulations for their protection, that we are destroying quite surely professional independence. Let a man stand on his own feet, and if he is capable of taking and holding appointments of varying kinds within the ambit of his special knowledge, good luck to him. He is a man above the average, and he deserves to succeed.

I am, Sir, yours faithfully,

IAN SKOTTOWE.

Bucks County Mental Hospital, Stone, Aylesbury, Oct. 14th.

To the Editor of THE LANCET

SIR,—The letter of "Psychiatrist" is somewhat ingenuous. He fulminates at the superintendents of mental hospitals for having the audacity to place their wide experience of mental diseases at the disposal of poor people attending teaching hospitals, assuming, presumably, that the hospital is primarily a means of livelihood for the consultant staff. It is possible that the governing bodies of some hospitals consider these superintendents to be the best men

available for psychiatric posts and therefore invite them to become candidates. Your correspondent again implies that the heads of mental hospitals are not conversant with modern psychotherapy. This may be true, but is not necessarily so. Much may be learned, even outside London, in the practice of psychiatry, though knowledge is, I admit, more quickly assimilated at a teaching clinic.

It appears to me that "Psychiatrist" must either become medical superintendent of a mental hospital or else persuade the governors of teaching hospitals that he is better qualified to look after their psychiatric patients. He must not impugn the motives of gentlemen who after all may consider that they are fulfilling a public duty (bearing in mind their experience of the subject), especially if they are not allowed consulting practice, as is the case in most public hospitals. I am, Sir, yours faithfully,

Manchester, Oct. 16th. W. A. RAMSAY.

A NEW CHEMICAL CONTRACEPTIVE

To the Editor of THE LANCET

SIR,—We would be grateful for the opportunity of commenting on the article by Mr. J. R. Baker and others published in your last issue, wherein was described the product of ten years' careful research, carried out under the supervision of the Birth Control Investigation Committee. It was generally realised when these researches were begun—and the fact has been definitely confirmed by subsequent experience—that contraceptive methods involving the use of mechanical appliances are not easily practicable by those elements of the population wherein a knowledge of how pregnancies should be spaced is most needed; and it was furthermore definitely established that coitus interruptus, probably the most widely practised of all methods, was highly unreliable and, in a proportion of cases, injurious. The possibilities of a chemical method which dispensed with mechanical appliances therefore called for careful investigation.

The first part of Mr. Baker's work consisted in devising a laboratory test of spermicidal efficiency and in investigating the basic chemical principles of contraception. Some 143 pure substances were tested, and it became clear that the assumption underlying the preparation of many products that, because a substance was an efficient germicide it was also a good spermicide, was erroneous. The spermicidal powers of the chemical substances mentioned by Mr. Baker in his article are immensely greater than those that have been included in the numerous proprietary products which have been brought to the notice of the medical profession.

The second part of Mr. Baker's work consisted in the incorporation of the spermicide in a medium which would satisfy the clinical requirements of being spermicidally efficient to a high degree, completely harmless, æsthetically acceptable, and cheap—a task which presented many unforeseen difficulties and complications which we believe have been overcome. We wish, in this connexion, to acknowledge the indebtedness of the committee to the scientific staff of the British Drug Houses for valuable contributions to this part of the work.

The preparation mentioned by Mr. Baker is continuing to receive careful clinical trial under medical supervision. In this trial, the preparation has sometimes been used as the sole contraceptive agency and sometimes in conjunction with mechanical appliances. Evidence on a scale sufficiently large to be conclusive is naturally difficult to obtain, so that it cannot be asserted with conviction that the preparation, when used alone, will give certain protection against pregnancy. Reports from a number of reliable observers, however, are of great promise.

The signatories of this letter are the medical members of the Birth Control Investigation Committee, which is incorporated with the National Birth Control Association.

We are, Sir, yours faithfully,

ARTHUR ELLIS, Chairman, Birth Control Investigation Committee.
HORDER, President, National Birth Control Association.
E. D. ADRIAN,
W. RUSSELL BRAIN,
GLADYS COX,
F. A. E. CREW,
FRANCES HUXLEY,
MARGARET HADLEY JACKSON,
MAURICE NEWFIELD,
C. P. BLACKER, Hon. secretary.

Birth Control Investigation Committee,
69, Eccleston-square, S.W.1, Oct. 11th.

OXYGEN THERAPY

To the Editor of THE LANCET

SIR,—All interested in oxygen therapy, including ourselves, will be giving serious trial to the new nasal mask described by Prof. Christie in your last issue. It may possibly become the most generally useful and widely accepted of all means of giving oxygen. It may, however, be found to have disadvantages in practice, so that it may become necessary to fall back on existing methods. For this reason it is desirable that misconceptions regarding such methods should not be fostered. Our purpose in writing this letter is to contest statements made by Prof. Christie regarding nasal-catheter administration of which he says:—

"A flow of about 6 litres per minute is required to maintain 45 per cent. of oxygen in the lungs. *Comfort.*—There are patients with dyspnœa who do not object to a catheter in the nose but there are many who do. Much greater than the mechanical discomfort is the irritation of the mucous membrane where oxygen escapes from the catheter. Even if several holes are cut few patients fail to complain of discomfort if a flow of 6 litres a minute is maintained for more than an hour or two. With the flow distributed through two nasal catheters, sufficient oxygen to raise the percentage in the lung to 45 will seldom be tolerated. The generalisation can be made that the nasal catheter, whether single or double, is usually only comfortable when insufficient oxygen is being given."

These remarks follow immediately upon the quotation of several references concerning nasal-catheter oxygen administration among which is the reference to a paper by us (*Brit. med. J.* 1936, **1**, 154). Hence the criticism may be taken as applying to the double nasal-catheter method we described. This method has been in use at the Middlesex Hospital in all wards for nearly four years and has been used on a large number of patients. It is also used in other hospitals. We have to-day questioned the three ward sisters of greatest medical experience at the Middlesex Hospital. Each computes her personal experience of the method at at least 50 patients and each has been in the habit of running the oxygen continuously at rates of 6–8, and sometimes as much as 10, litres a minute. Their nurses have been taught to regard 6 litres a minute as the minimal useful flow. Each sister regards uninterrupted maintenance of such flows for several days as a common-place of ward routine, and each has had several patients to whom administration has been maintained for from one to three weeks. Their experience coincides with our own, and we all have found the proportion of patients who raise objection to the method to be very small. Such objections as are raised do not usually concern the rate of flow of the oxygen, but are of headache

due to pressure of the head-strap which holds the catheter-carrier. The disadvantage of the pressure of the head-strap has recently been overcome by Mr. Tudor Edwards, who has introduced a spectacle frame catheter-carrier; he described it in THE LANCET of Sept. 17th last (p. 680). With this carrier patients are very comfortable. Prof. Christie's nasal mask depends for its retention on the head upon a head-strap. He may possibly find a spectacle frame contrivance an improvement.

Comfort with any method largely depends upon attention to detail. The points of importance in regard to our method will be found in our paper. We would only here mention that the oxygen must be adequately humidified by passage through sufficient depth of water and that ordinary rubber catheters should not be used; cycle valve tubing, which is much softer, should be employed in place of them.

We are, Sir, yours faithfully,

H. L. MARRIOTT,
KENNETH ROBSON.

London, W., Oct. 15th.

DETERMINATION OF BLOOD VOLUME

To the Editor of THE LANCET

SIR,—Mr. Charnley in his letter in your issue of Oct. 1st raises a number of interesting points in connexion with the recent communication by four of us on blood-volume changes in hæmatemesis. We would like to reply.

1. We stated that in our experience vital red was an unsatisfactory dye for blood-volume work; Mr. Charnley, on the contrary, did not notice any undue rapidity in the rate of elimination of the dye from the circulation. The discrepancy may be partly due to the fact that a number of different substances are sold under the generic name of "vital red." G. T. Gurr, from whom we obtained our dye, when asked for vital red for blood-volume work, supplies brilliant vital red (Evans) (also called brilliant Congo red). This is the tri-sodium salt of α-tolyl-disazo, A-β-naphthylamine-3,6-disulphonic acid, B-β-naphthylamine-6-sulphonic acid.

The vital red used by D. T. Harris in his important paper on the subject (*Brit. J. exp. Path.* 1920, **1**, 142) was di-sodium naphthol-di-sulphonic acid-azo-tetra-methyl-triphenyl-methane. This we understand is the original substance used by Keith and is listed by Gurr as vital red (Keith). It is obviously a totally different substance from brilliant vital red. According to Harris, the Keith dye was excreted too rapidly to be of value in blood-volume work. The problem is further complicated by the existence of other vital reds—e.g., vital new red—which are used for staining purposes. The Congo red that we use is diphenyl-disazo-bis-α-naphthylamine-4-sulphonic acid. There is also a brilliant Congo 2 R (of which we have no experience) and brilliant Congo red to which we have already referred.

2. We agree that cloudiness of the plasma interferes with accuracy, but we have always avoided the cloudiness due to the presence of fat by examining our subjects in the post-absorptive state.

3. We agree that there are considerable variations in apparently normal individuals both in total and per kilogramme values. Some of our lowest figures (per kg.) were in very fat persons. As we stated in our paper, our findings, as regards range, dispersion, and mean, in the normal groups, are in close accord with those of the American authors, judged by rigorous statistical tests. Therefore we thought it unnecessary to give further details. The extreme figures in our normal group (men) are 4·4 and 7·3 litres (total volume).

4. Mr. Charnley suggests that gross errors are involved in a second blood-volume determination made within a few hours of the first. One of us (W. F. F.) has calculated the error involved in successive determinations with residual dye in the blood. It can be shown that if two determinations are made so that, at the time of the second injection of v c.cm. of dye solution of concentration y g. per litre, there is residual dye in the blood to the extent of v c.cm. of a solution of concentration x g. per litre, then the percentage error in plasma volume, resulting from neglect of the residual dye, is:—

$$100\,\frac{\Delta V_p}{V_p} = 100\,\frac{x}{y}\left(1 - \frac{l_s}{l_x}\cdot\frac{k_s}{k_x}\right),$$

where x, y are concentrations of dye as defined above,

l_s, l_x are colorimeter readings on the standard and unknown solutions, and

k_s, k_x are correction factors due to the presence of 1 c.cm. of liquid oxalate added to the samples of blood taken before and after injection of the dye.

Now, this error can be made as small as we please by making the term $\frac{l_s}{l_x}\cdot\frac{k_s}{k_x}$ approach the value 1. This condition is fufilled (1) if we use, as a standard a dilution of dye which gives approximately equal colorimeter readings, and (2) if we put as nearly as possible the same amount of blood (5 c.cm.) in the two centrifuge tubes. We avoid the error by using a 1/250 dilution of the dye as standard and by complying with Condition 2. Calculation shows that with these precautions the total error need not be more than a few per cent. No account has been taken here of the error due to the colour of the plasma. This error disappears of course when $l_x = l_s$, and hence when Condition 1 is satisfied.

5. Finally we wish to draw attention to what appears to be an error in the formula for the calculation of the plasma volume given in other published work. The correct expression is:—

$$V_p = 250\,vk\left(\frac{l_x}{l_s}\right) \text{ c.cm.}$$

where v is the number of c.cm. of dye injected,
k is a correction factor for liquid oxalate, and
l_x, l_s are colorimeter readings of unknown and standard solutions respectively.

The term $\left(\frac{l_x}{l_s}\right)$ is (incorrectly) inverted by some authors.

We are, Sir, yours faithfully,

IZOD BENNETT, SAMSON WRIGHT,
JAMES DOW, W. F. FLOYD.
F. P. LEE LANDER,

Middlesex Hospital, W., Oct. 11th.

A MODIFIED FACE TENT

To the Editor of THE LANCET

SIR,—With regard to the article on oxygen therapy in your last issue it should be mentioned that a modification (Dr. A. L. Barach's) of my face tent (see p. 878) has been accepted as efficient by the American Medical Association Council of Physical Therapy. The face tent may be used when the nasal passages are blocked. The objections to the face tent were recorded in the original papers and have already been overcome (*Brit. med. J.* 1938, **1**, 1260). When a curtain is used, any tendencies to accumulation of carbon dioxide and stuffiness are remedied by increasing the flow of oxygen. Care should be taken to keep the cheeks outside the tent.

I am, Sir, yours faithfully,

London, N.W., Oct. 15th. J. ARGYLL CAMPBELL.

SPONTANEOUS HÆMOTHORAX

To the Editor of THE LANCET

SIR,—Dr. Brooke's conception of bleeding from an adhesion torn by the sudden pull of a collapsing lung will not explain cases of pure hæmothorax or those cases of hæmopneumothorax in which the amount of air is very small. When an adhesion is torn across, bleeding is more likely to occur from its parietal than from its visceral end, since collapse of the lung if great enough will tend to occlude vessels near the surface of the lung. The presence of tuberculosis in the lung should not, I think, necessarily alter our conception of the ætiology or place the case in a separate group. In the case I reported, and to which Dr. Falla refers, the minute tuberculous cavity was in the apex and there was no macroscopic evidence of tuberculosis near the site of the bleeding.

In August this year I had a patient aged 32 who had a sudden pain in the chest while reading. He had not been moving or coughing before it came on and had no past illnesses. I saw him five days later with a large pleural effusion which proved to be pure blood. Thoracoscopy showed a small area on the left lower lobe covered with shaggy blood clot—presumably where an adhesion had torn across. Numerous other adhesions were present. The lungs expanded completely and showed no X ray evidence of tuberculosis. No X ray examination was made in this case until after needling. Some air may have been introduced, but the amount present was not great and the condition may have been entirely hæmothorax.

I think it unlikely in this case that the adhesion was stretched and torn by the collapsing lung. Some other mechanism such as that suggested by Dr. Perry must be responsible.

I am, Sir, yours faithfully,

London, N., Oct. 15th. C. ALLAN BIRCH.

To the Editor of THE LANCET

SIR,—I have also had such a case. On Jan. 25th, 1935, a man aged 25 was admitted to the Middlesex Hospital, under my care, suffering from spontaneous hæmopneumothorax. There was no previous history of chest disease and no family history of tuberculosis. On Jan. 23rd he had noticed slight pain, on removing his coat, on the right side of his chest at the level of the 1st and 2nd ribs. The next day the pain was more severe and became stabbing in character. On admission to hospital he was desperately ill, pale, collapsed, and dyspnœic. The temperature was 97·8° F., pulse 150, respirations 40, and hæmoglobin 55 per cent. The heart was displaced to the left and signs of air and fluid were present on the right side of the chest. The intrapleural pressure above the fluid was not high, −6/−2 cm. water, and exploratory puncture showed the fluid to be blood. As it appeared probable that immediate aspiration of the chest would prove fatal, a blood transfusion of 700 c.cm. was given with good results. Subsequently the chest was aspirated on six occasions, up to 2000 c.cm. of blood being removed at a time. The blood remained fluid and subsequent radiological examination did not suggest the presence of clots. The intrapleural bleeding appeared to be finally arrested by intravenous injections of 10 c.cm. of 1 per cent. Congo red. The patient made a good recovery and no evidence of tuberculosis was discovered.

On looking up the records at the Brompton Hospital I could only find one similar case, which the physician-in-charge kindly gives me permission to publish.

A man aged 28 was admitted on June 12th, 1933, with a right spontaneous hæmopneumothorax. He had suffered from pain on the right side of the chest for three weeks. After aspiration of nearly a pint of blood, a blood transfusion of 400 c.cm. was given, but he died the same day. A post-mortem examination the next day revealed a quart of fresh blood in the right pleural cavity, with the right lung completely collapsed. No lesion was found in the lung, no bullæ and no adhesions were seen, and no cause was found for the bleeding.

I have also traced further cases in the literature: (1) a male aged 32, described by C. P. Mayer and F. A. Pataro (*Sem. méd., B. Aires*, 1934, **2**, 447); (2) a male aged 21, described by M. Bellon (*Arch. Méd. Pharm. milit.* 1934, **100**, 305); (3) a male aged 43, described by J. Woll (*Dtsch. med. Wschr.* 1933, **59**, 1469).

I am, Sir, yours faithfully,

Wimpole-street, W., Oct. 17th. G. E. BEAUMONT.

CANCER OF THE STOMACH

To the Editor of THE LANCET

SIR,—After my notes on this subject appeared in your issue of July 30th (p. 235), Mr. Garnett Wright pointed out to me that the step of detaching the great omentum from the transverse colon, which I had attributed to Finsterer, was first advocated by Hey Groves in 1910 (*Proc. R. Soc. Med.* 1910, **3**, 117). I have since read this remarkable paper, and am chagrined to find that the operation which I had been slowly developing over the last ten years, and which I believed to be in many ways my own, is there in most details. Such steps as removal of the superior leaf of the mesocolon, taking the peritoneum off the head of the pancreas, dividing the left gastric artery at its origin from the cœliac axis, and stripping the lymphatic tissue right up to the cardia, are all advised. The figure which I drew to illustrate radical removal of the cancer bed is almost identical with one in this article. I feel it is my duty to recall the attention of those who are interested in gastric surgery to this previous description, and to give to Mr. Hey Groves, whose early work in the abdomen has been overshadowed by his many contributions to bone and joint surgery, the credit which is his due.

I am, Sir, yours faithfully,

Harley-street, W., Oct. 18th. W. H. OGILVIE.

GRAINS AND SCRUPLES

To the Editor of THE LANCET

SIR,—A doctor friend of mine gave me the article of Oct. 1st on Grains and Scruples to read last night. He told me that these "unfettered thoughts" of doctors were well worth pondering over. I certainly found that it was so. One thing, however, set me wondering, and it was this. How can I, a priest of the Church, who was ready to be instructed by one who is an expert in his own province, accept as accurate what was stated, when the first paragraph, which trespassed upon something which was my province, spoke of Moses as ascending Mount Carmel? One could appreciate the subtlety of the remark about Moses "slipping a chisel into his pocket," but Carmel is a long cry from Sinai!

I am, Sir, yours faithfully,

H. E. TILSTON.

S. Margaret's Vicarage, Leytonstone, Oct. 13th.

*** We take no responsibility for the historic ascent but our contributor apparently preferred to make his survey from a hill within mandated territory. —ED. L.

MEDICINE AT CAMBRIDGE

RECENT DEVELOPMENTS

THE recently inaugurated department of medicine at Cambridge enters upon its third academic year with good prospects and a greatly strengthened research unit. At its inception the personnel included the regius professor of physic (Dr. J. A. Ryle), an assistant director of research, and four whole-time clinical research students appointed under the terms of the Elmore bequest, together with secretarial and technical staff.

Dr. J. F. Brock, the first assistant director, left in March on his appointment to the chair of medicine at Capetown. A readership in medicine has now been created in place of the assistant directorship, and Dr. R. A. McCance, resigning his post as assistant physician with charge of the biochemical department at King's College Hospital, becomes the first reader. He has been elected to a fellowship at his own college, Sidney Sussex, and in furtherance of the friendly and developing association between the University and Addenbrooke's has been appointed assistant physician to the hospital. Dr. McCance's contributions to scientific medicine, especially in its biochemical and nutritional aspects, have earned him a wide reputation at home and abroad, and his return to Cambridge is generally welcomed. Miss E. M. Widdowson, who has collaborated with him for some time under a grant from the Medical Research Council, will continue to work with him.

Through the generosity of the Rockefeller Foundation, which has contributed the necessary endowment to cover stipends during the next five years, it has been possible to create three new research assistantships in the department. Mr. F. R. Berridge has been appointed assistant in research in radiology (diagnostic); Dr. A. Paterson, assistant in research in psychiatry; and Mr. T. D. Day, assistant in research in pathology (morbid anatomy and histology). Mr. J. S. Mitchell, a fellow of St. John's, has been appointed as an additional research assistant in radiotherapy.

In pursuit of a considered policy it has thus come about that there are now whole-time research workers coöperating with all those services in Addenbrooke's Hospital which have an immediate connexion with general medicine, with the single exception of bacteriology for which no funds are at present available. All the research workers combine certain routine hospital duties with their research, and thus, on the one hand, give service to the hospital in return for the opportunities afforded them and, on the other, obtain access to the clinical and pathological material necessary for their particular investigations. The hospital governors and the honorary staff of Addenbrooke's have been generous in the provision of facilities for the work of the department; the community of interests becomes ever more apparent and the partnership between hospital and university is now a real and active one. It is anticipated that closer contacts will shortly be established between the department of medicine and the university departments of pathology, physiology, anatomy, biochemistry, and experimental psychology. The laboratories of all these departments are in close proximity to each other and to Addenbrooke's.

Of the first four Elmore research students appointed in 1936, Mr. G. D. Hadley has gone as first assistant to a medical unit at the London Hospital, and Mr. A. C. E. Cole has joined the Colonial Medical Service. Mr. L. C. Martin and Dr. B. McArdle are holding their appointments for a further year. Dr. J. C. Sinclair of Toronto University, and Mr. A. Willcox, until recently medical registrar at the Middlesex Hospital, have been elected to the two vacancies. Dr. W. H. Bradley continues to work in the department with a grant from the Medical Research Council, and Dr. Gertrud Plaut under the Handson bequest (Caius College).

As a temporary measure and with the consent of Prof. T. Dalling, the laboratories and offices in the pathology department originally intended for the use of the department of animal pathology have been equipped for the use of the department of medicine. A larger scheme is ultimately envisaged of a fully equipped department of medicine with special wards and laboratories of its own in immediate association with Addenbrooke's Hospital.

The department of medicine, together with Dr. L. B. Cole and Mr. R. W. Butler (as liaison officers for the hospital) and the coöperation of other members of the Addenbrooke's staff, also contributes in certain ways to undergraduate teaching in the fields of physiology, pathology, biochemistry, and pharmacology.

Medicine as a subject may thus be said to have established itself firmly now in the Faculty which bears its name. The parent science becomes represented in the youngest department to provide a new stimulus for the advancement of the biological sciences both in the academic sphere and in their human applications.

YELLOW FEVER

ON Oct. 13th Dr. FRED L. SOPER, of the International Health Division of the Rockefeller Foundation for South America, addressed the Royal Society of Tropical Medicine and Hygiene in London, his subject being the present situation of yellow fever. He related how the Rockefeller Foundation embarked in 1915 on a programme of eradicating yellow fever from the Americas by collaborating in the organisation of measures against *Aedes ægypti* in the known endemic foci of the disease. These measures strikingly reduced the number of cases in the larger cities and ports but failed to eradicate the disease completely from certain areas in Brazil. That this was not characteristic of Brazil was suggested by the occurrence in 1929 of two widely separated outbreaks at isolated points in Colombia and Venezuela, and it was ultimately shown that there were two hitherto unknown factors to be considered—namely, rural yellow fever transmitted by *A. ægypti*, found in a localised area of north-east Brazil, and jungle yellow fever which was widespread and was found in the absence of *A. ægypti*. The rural type was bound up with the nomadic habits of the people who move freely from place to place during pilgrimages and periods of drought, and carry with them in their water-jars eggs and larvæ of aedes which readily find new breeding-grounds in the stores of rain-water collected against the drought. When these facts were determined, extensions of the anti-aedes service to the rural areas produced results similar to those obtained in the cities, and yellow fever rapidly disappeared from the regions worked; in fact, were it not for the existence of the jungle infection, yellow fever might well have disappeared from the Americas in 1934.

The epidemiology of the jungle infections is, however, quite different from that of the other types, although clinically the diseases are exactly similar. Urban and rural *ægypti*-transmitted yellow fever is generally acquired indoors, tends to affect non-immunes of all ages, spreads along the lines of human travel, and is easily controlled by reduction of the density of the vector. Jungle yellow fever, on the other hand, is acquired in or near the forest during working hours by those whose occupation takes them to the woods, and does not affect other members of the household. The infection of man is apparently accidental, occurring in the course of some cycle of infection of which man is not an essential part. Recently forest mosquitoes (*A. leucocelænus*, *Hæmogogus capricorni* and species of sabethines) have been captured naturally infected and furthermore there is some evidence that certain monkeys commonly become infected; but it is difficult to fit all the observed facts into a simple mosquito-monkey-mosquito cycle of which man's infection is but an accidental offshoot. The only reasonable hope of preventing human infection, said Dr. Soper, seems to lie in individual immunisation of exposed populations, and during the first nine months of 1938 more than 800,000 persons have been vaccinated with entirely satisfactory results and without serious complications of any kind. Valuable knowledge has been obtained from examination of livers obtained by viscerotomy, the service which he has organised having made over 140,000 examinations. Viscerotomy, anti-*ægypti* measures, and vaccination are the keys to successful control of yellow fever in Brazil.

The BRAZILIAN AMBASSADOR spoke of the happy coöperation between the federal and State authorities and the Rockefeller organisation.

Dr. G. M. FINDLAY showed how the mouse-protection test had revealed the unexpectedly enormous endemic distribution of yellow fever in Africa. There the disease is both urban and rural but jungle yellow fever in the Brazilian sense has not been demonstrated, for so far no rural area has been found in Africa in which *A. ægypti* is not present. The hepatitis which in some cases followed the earlier vaccinations was due to another virus, probably similar to, or identical with, that of epidemic catarrhal jaundice, which had been introduced into the yellow fever tissue culture; but this complication has now been eliminated. Judged by blood tests, immunity lasts two or three years but tissue immunity may persist longer.

Dr. M. T. MORGAN asked whether the mouse-protection test and the liver examinations can be regarded as satisfactorily specific, and Colonel F. P. MACKIE mentioned that the mouse-protection test suggested a recent silent spread of the disease around Mallakah in Africa, although there was a strange absence of clinical evidence of the disease.

Sir JOHN MEGAW raised the question whether the virus, if introduced into India, would spread as in Africa and America. Sir MALCOLM WATSON expressed his admiration for the organisation for the control of aedes and hoped that the details would be published. With regard to the spread of the disease in Africa he had failed to find *A. ægypti* breeding in trees in Nigeria.

In reply Dr. SOPER said he had every confidence in the mouse-protection test and the pathological examination of the liver as indicators of infection. Jungle yellow fever, he believed, was the older and more permanent form of the disease. With regard to Africa he thought that if the virus ever reached the east coast the worst might be expected, since every boat headed for India became a definite threat.

LONDON MEDICAL EXHIBITION

THIS exhibition, exclusively for the medical profession, opened on Monday last in the New Horticultural Hall in Greycoat-street, Westminster, and will remain open until Friday, the 21st, at 6.30 P.M. We have made notes on a few of the many thousands of preparations and instruments exhibited at the stands, concentrating on those which have been produced since the exhibition of last year.

Drugs and Pharmaceutical Preparations

(101) ABBOTT'S LABORATORIES (ENGLAND) LTD. (Wadsworth-road, Perivale) introduced Iberin—iron-vitamin B complex-liver concentrate, for secondary anæmia; and reminded doctors of the value of their Nembutal, a hypnotic and sedative for pre-operative medication and insomnia; and of their Pentothal Sodium, a general antiseptic given intravenously.—(90) ALLEN AND HANBURYS LTD. (Bethnal Green, E.) presented a new cough linctus based on their well-known lozenges "Glycurrant," containing glycerin, codeine, squill and the juice of ripe blackcurrants; "Calcydic" tablets of vitamin D and calcium phosphate; a whole series of ophthalmic cerates; and Saurin Brand sour milk pessaries.—(87) ANADIN LTD. (12, Chenies-street, W.C.) presented again their non-depressive, non-habit-forming formula for the effective relief of pain.—(100) THE ANGIER CHEMICAL CO., LTD. (86, Clerkenwell-road, E.C.), showed the petroleum with hypophosphite emulsion and Sagradol laxative, both of which are known to the medical profession as well-established and safe preparations.—(116) THE ANGLO-FRENCH DRUG CO., LTD. (11 and 12, Guilford-street, W.C.), selected from their range of preparations Iodamelis, now available also in tablet form; Thionaiodine (Logeais), a compound of iodine and sulphur for rheumatism; Pantavene, a preparation embodying all the excito-tonic principles of oats, for physical and nervous depression; and Urandil—iodine-uranium ointment for dermatoses, wounds and burns.—(19) ANTIBODY PRODUCTS LTD. (Watford, Herts) had on view their preparations for the testing and treatment of asthma; British bee-venom for rheumatism; pollen for hay-fever; and Antibacsyn for chronic infections.—(80) THE ANTIGEN LABORATORIES (95, Great Portland-street, W.) displayed a range of vaccines, including one for the prevention of the common cold. Also displayed were Ruthmol, a chloride-free table salt; Femaloid, tonic restorative for women; and the new Panvax preparation of Besredka's anti-virus, for replacing chemical antiseptics. They told visitors about their general practitioner's laboratory service for the preparation of autogenous vaccines.

(7) THE ARMOUR LABORATORIES (Armour House, St. Martin's-le-Grand, E.C.) showed their Glanoid endocrine products and especially pointed out Proethron Forte 1: 100, a very highly concentrated liver liquid for intramuscular injections; the Anti-menorrhagic Factor Glanules, containing a non-saponifiable fraction of mammalian liver tissue suspended in a neutral base for the treatment of menorrhagia and metrorrhagia; and preparations of separated anterior pituitary factors as well as Polyansyn (polyvalent pituitary extract). They reminded visitors of their sterilised surgical ligatures and sutures.—(43, 44, 58) BAYER PRODUCTS LTD. (Africa House, Kingsway, W.C.) selected for special mention Betaxan, synthetic vitamin B_1, which can be given intramuscularly every day for several weeks or, in severe beri-beri, intravenously; and Uleron, a new preparation which had the experimental name of Diseptal and is the product of the latest research on prontosil-like compounds for the treatment of infective diseases.—(5) BENGUE AND CO., LTD. (24, Fitzroy-street, W.), gave special prominence to Agocholine Brand Granules, composed of purified peptone powder, anhydrous magnesium sulphate and

essence of peppermint; Passiorine, a circulatory and nerve sedative; Pulmo Bailly Brand compound of calcium, phosphorus, and guaiacol; Permyase, for the treatment of ulcers and secondary infections; and introduced their new Opticura eye drops supplied in a novel patented dropper flask.—(86) BISODOL LTD. (12, Chenies-street, W.C.) displayed once more their combination of antacid constituents with the digestive ferments, diastase and papain.—(37) BOOTS PURE DRUG CO., LTD. (Nottingham), presented a range of specialties, including Hepastab-No. 2, a mammalian liver preparation for intramuscular or intravenous injection; Gastomag magnesium trisilicate, for hyperacidity; Rusven (Russell's viper venom) for local application in bleeding; Supersan antiseptic with a Rideal Walker coefficient of 6; Acriflavine preparations of all kinds; and Jecocin, vitamin-tested cod-liver oil with creosote, chloroform, and cinnamon.—(57) BRITISH ALKALOIDS LIMITED (Dashwood House, E.C.) reminded visitors of their T.C.P. general antiseptic for external and internal use; and of their T.C.P. B_1 colloidal emulsion, a non-alkaline treatment for intestinal infections.—(156) BRITISH COD LIVER OIL PRODUCERS (HULL) LTD. (St. Andrew's Dock, Hull) emphasised the usefulness of their SevenSeaS cod-liver oil preparations for ophthalmic conditions and for the treatment of burns, mentioning its topical value in A.R.P. work.—(140) BRITISH DRUG HOUSES LTD. (Graham-street, City-road, N.) laid special stress on their Anahæmin liver preparations for pernicious anæmia, in which they claim to offer a maximum concentrate of hæmatopoietic principle. They also showed their range of vitamin productions, and introduced a new and potent contraceptive—Volpar—in pessaries and paste.—(114) BURROUGHS WELLCOME AND CO. (Snow Hill-buildings, E.C.) offered a comprehensive selection of high quality pharmaceutical and serological products. A prominent position was given to Tabloid Sulphonamide-P for the oral treatment of hæmolytic, streptococcal, and other infections; also Ryzamin-B Rice Polishings Concentrate, a clear, syrupy preparation; Calcium Mandelate Compound; Vaporole solution of adrenaline 1 : 100 for asthma; and Tabloid Nicotinic Acid for pellagra.—(1) G. W. CARNRICK (Brooks and Warburton Ltd., 232–240, Vauxhall Bridge-road, S.W.) showed their range of hormone products, and introduced Hemochromin, a new liver and iron combination in enterosol-coated tablets; Progestone, standardised corpus luteum hormone for hypodermic use; and Erythgen—standardised liver extract for oral administration or intramuscular injection.

(3) THOS. CHRISTY AND CO., LTD. (4–12, Old Swan-lane, E.C.), drew special attention to Anti-bi-san, a powdered polyvalent serum for prevention of influenza and common cold; Cortisorbate tablets (Schieffelin), a charcoal adsorbate of adrenal cortex, to be taken by the mouth; Ergoapiol (Smith) for gynæcological use; Sonasta (brand), a hypnotic; Histoplast vaccine plasters containing anti-staphylococcal vaccine; and Sorbefacin, a bland, non-irritating dressing in plastic form.—(13, 14) COATES AND COOPER LTD. (94, Clerkenwell-road, E.C.) had a large assortment of pharmaceutical products on show, including digitalis preparations and sedatives; Apondon, a combination of thyroid and ergocholin for reducing weight biologically; Ovo-sedicyl, a choline combined with ovarian follicular hormone for climacteric disturbances; Forapin, a standardised venom of living bees issued in ointment and ampoules; and Thilo-cologne—pure ethyl chloride with eau-de-Cologne.—(162, 163) CONTINENTAL LABORATORIES LTD. (30, Marsham-street, S.W.) showed Antipeol, a vaccine filtrate described as containing the antivirus corresponding to the principal microbes of cutaneous infections, for wounds, burns, and skin infections, with its two main recent derivatives: Ophthalmo-Antipeol, a polyvalent vaccine broth filtrate of staphylococci, streptococci, *B. pyocyaneus*, pneumococci, and gonococci; and Rhino-Antipeol, a polyvalent vaccine broth filtrate of staphylococci, streptococci, *B. pyocyaneus*, pneumococci, pneumobacilli, enterococci, *M. catarrhalis*, and Pfeiffer's bacillus.—(117, 118, 136, 137) CROOKES LABORATORIES, BRITISH COLLOIDS LTD. (Park Royal, N.W.), on a stand containing much interesting material, showed by a chart the value of the various elements in physiology; also a spectrograph which is used in vitamin A testing, showing how pure halibut-liver oil can be distinguished spectrographically from inferior mixtures. They have introduced a new Lacto-Magnesia colloidal tooth-paste; and Collosal liver-iron capsules, containing colloidal ferric hydroxide, vitamin-B complex, and very concentrated liver extract, each capsule being equivalent to half a drachm of fresh liver. They claim that their mercury sulphide preparation for arsenical dermatitis and psoriasis can be injected without pain. For transfusion they now produce a 40-oz. Swing Stoppered bottle with holder, and a new apparatus using three bottles, the empties of which can be replaced without interrupting the administration.—(45) J. C. ENO LTD. (160, Piccadilly, W.), in addition to the well-known Fruit Salt, introduced Vitabene Brand Tonic Tablets. The Kola nuts used in this preparation are said to be specially stabilised to retain their active principles.

(149, 150, 160) EVANS SONS LESCHER AND WEBB LTD. (56, Hanover-street, Liverpool) presented a full range of products made at the Evans Biological Institute, drawing special attention to antitoxins for diphtheria, scarlet fever, and tetanus as well as laying stress on vaccines for the prevention of the common cold. Their newest preparation is a solution of liver, Hepatex-T (Tropical), for intramuscular injection in cases of nutritional macrocytic anæmia, especially tropical anæmia. Another new product was Elixir Iodo Caffeine compound; they also showed Zant germicide preparations, Streptocide (sulphanilamide) products, and a series of the immunological substance used against diphtheria.—(70) FASSETT AND JOHNSON LTD. (86, Clerkenwell-road, E.C.) demonstrated again their noted preparations: Argyrol Brand Silver Vitellin, a stable non-toxic and non-irritant silver preparation; Ovoferrin brand colloidal iron tonic; Quinisan, a combine of salicylate and quinine for the common cold, influenza, and other febrile conditions; and the Seabury Specialities, including Ready-Aid, rigid and elastic, rubber adhesive, and zinc oxide plasters and dressings.—(95, 96, 109) GLAXO LABORATORIES LTD. (Greenford, Middlesex) had added to their range of G.L. products two new preparations: Hesperidin vitamin P tablets, providing a vehicle for the new vitamin factor associated with, but different from, ascorbic acid; and Caldeferrum tablets of iron, calcium, and vitamin D.—(121) C. J. HEWLETT AND SON LTD. (35–42, Charlotte-road, E.C.) had on display a large selection of drugs and sterilised injections, and also their various bags for practitioners: to the "Complete G.P." Bag, and the "G.P." Midwifery Bag they have added a "Physician's" Bag which contains, in addition to the G.P. outfit, a sphygmomanometer and an electric auriscope; they also introduced Salutan, a tannic acid powder for burns and an improved Baron's lithotomy support.—(110) THE INHALATION INSTITUTE LTD. (87, Eccleston-square, S.W.) demonstrated their Collison Inhaler for medicated oxygen therapy, and their Humphris-Collison Radium Emanation Inhaler.—(166) KAYLENE LTD. (Waterloo-road, N.W.) presented their various preparations of colloidal kaolin, including Magsorbent, a synthetic hydrated magnesium tri-silicate; Carbokaylene, with activated vegetable charcoal; and a new product: Magsorbent Glucose, combining medicinal glucose with Magsorbent and peppermint in granules and tablets, for the treatment of acidosis in children.—(119) LACTEOL BRAND PRODUCTS (Dr. BOUCARD) (55, Welbeck-street, W.) displayed a new preparation Mia-hol as a skin tonic, a natural non-chemical product in ampoule form for external use.

(6) ELI LILLY AND COMPANY LTD. (2, 3, and 4, Dean-street, W.) had many specialties on view, and made special reference to Merthiolate brand sodium

ethyl mercurithiosalicylate, a general antiseptic of high germicidal value; and particularly to Reticulogen brand parenteral liver extract with vitamin B_1. Seconal brand sodium propyl-methyl-carbinyl allyl barbiturate, a short-acting hypnotic, was given prominence, as was also a new neat bakelite urine sugar test case (Sheftel), small enough to be packed in the pocket.—(148) MENLEY AND JAMES LTD. (64, Hatton-garden, E.C.), manufacturers of the well-known Iodex and of Eskay phosphates, pointed out that although their Benzedrine tablets will be on the first and seventh poison schedules after Jan. 1st next, their Benzedrine brand inhaler will be exempt. —(103) H. R. NAPP LTD. (3 and 4, Clement's Inn, W.C.) displayed their Normacol vegetable evacuant, and also showed Hepamult liver extracts, Sedonan for inflammatory conditions of the ear; Sanocrysin and Oleo-Sanocrysin (gold sodium thiosulphate preparations) and three recent products: Caapi tablets—for the abortion of coryza; Carbomucil—activated charcoal with Normacol—and Immidiol gargle, with anthraquinone glucosides in a salicylic acid alcoholic solution.

(120) OPPENHEIMER, SON AND CO., LTD. (Handforth Laboratories, Clapham-road, S.W.), had a display of their well-known preparations, including Alphidine, "the non-toxic, non-irritant iodine," and its various combinations; Balmosa (Iodised), a non-greasy cream of methyl salicylate and iodine with rubifacients; Vasotone, a sterile solution of the diuretic and non-proteid depressor principles present in liver, for the treatment of menopausal flushings; and Bipalatinoid jujube cachets.—(33) ORGANON LABORATORIES (77, Newman-street, W.) showed their hormone preparations, including Pernaemon Forte for painless intramuscular injections of liver; Dimenformon in a new strength (10,000 international benzoate units per mg.); and a new preparation, Neo-Hombreol, containing synthetic testosterone propionate, for the therapy of prostatic disorders and other conditions.—(73) OXO LIMITED (Thames House, Queen Street-place, E.C.) displayed, as well as their familiar beef preparations, Oxoid Brand Œstrin, an oil solution in concentrations of 1000 to 50,000 international benzoate units per c.cm., also in tablets of 1000 units per tablet; and, in addition, their new vitamin B_1 tablets and ampoules representing 500 international units per tablet and 1000 or 5000 units per ampoule.—(64) PARKE, DAVIS AND CO. (Beak-street, W.) made a special feature of St. Mary's Hospital vaccines, for which they are the sole distributing agents, and demonstrated to the visitor influenza and vaccinia virus growing on the duck embryo "in ovo." The method of typing pneumococcus was also demonstrated, and 30 types were on view. Also shown by them was their new preparation—Epanutin (sodium diphenyl hydantoinate) for epilepsy; Antuitrin "S"; Crysto-Vibex with vitamin C, containing B_1 and C vitamins; and Tar Dermament, a combination of a special type of alcohol-soluble phenolic resin with 6 per cent. of washed crude oil coal-tar.—(75) PETROLAGAR LABORATORIES LTD. AND JOHN WYETH AND BROTHER LTD. (Oldhill-place, N.) introduced a new colloidal aluminium preparation: Aludrox Brand Amphoteric Gel, which is an amphoteric preparation designed to reduce the free acid to a minimum; they also showed Plastules Brand Hæmatinic Compound, presenting ferrous iron in semi-fluid form kept stable in a plastic gelatin capsule.

(98, 99, 108) PHARMACEUTICAL SPECIALITIES (MAY AND BAKER) LTD. (Dagenham, London). On this stand interest was focused on the new product M. & B. 693, which possesses powerful pneumococcicidal properties; it is 2-sulphanilyl-aminopyridine and is prepared in tablet form for oral administration. In addition, Proseptasine, for oral administration in the prophylaxis and treatment of streptococcal and *B. coli* infections, and the firm's other well-known products were on view.—(71, 84) ROCHE PRODUCTS LTD. (Welwyn Garden City), on their blue and white stand, drew attention to their pharmaceutical products, which are manufactured in this country, and demonstrated Cycliton Respiratory and Circulatory Stimulant, which is said to be rapidly absorbed however administered and to have no direct effect on the heart; Heparin Roche anticoagulant, which prolongs blood coagulation without altering bleeding time; and Benerva-Forte ampoules, containing synthetic aneurin, for treating severe manifestations of B_1 deficiency.—(129) ROUSSEL LABORATORIES LTD. (36, Cavendish-square, W.), a new British company related to the Roussel Laboratories of Paris, showed a number of chemotherapeutic biological products, especially Rubiazol (carboxy-sulphamido-chrysoidine), for which they claim high anti-streptococcal activity in low doses without toxicity; Gonadyl, follicle-stimulating gonadotropic hormone; Gynœstryl, for the treatment of menstrual disorders and climacteric depressions; and Hemostyl, recommended for use in convalescence and other debilities.—(147) SANDOZ PRODUCTS (J. FLINT) (134, Wigmore-street, W.) stressed, among their well-known preparations, Neo-Femergin, a carefully balanced association of ergobasine (ergometrine) tartrate and ergotamine tartrate, possessing a rapid and sustained action on the uterus.—(27–29) SAVORY AND MOORE LTD. (London, W.) and WM. MARTINDALE (75, New Cavendish-street, W.) had introduced last year glucose with natural vitamin D, and now added to it a Complete Milk Food, including added vitamin D and soluble iron.—(46, 47) SCHERING LTD. (185–192, High Holborn, W.C.) emphasised their new preparation Testoviron, the propionic acid ester of pure crystalline male hormone, for all forms of testicular inefficiency, and also for metrorrhagia, dysmenorrhœa, and chronic mastitis; also Progynon, dihydro-follicular hormone; Proluton, pure crystalline corpus luteum hormone; and Solganal B Oleosum, an organic gold preparation for intramuscular injection.—(25a, 26) SCOTT AND BOWNE LTD. (10, Stonecutter-street, E.C.) introduced to the English market Tetravitol, containing vitamins A, B, C, and D, halibut-liver oil, fruit juices, and malt extract; and another new preparation—Kemdex denture cleanser, an anhydrous powder put up in screw-top bottles for the bathroom and forming a mildly alkaline solution. They informed visitors that their Halivite is still the only pill on the market containing actual drops of halibut-liver oil, each being equivalent to two drops. —(164, 165) SHARP AND DOHME LTD. (Mulford Biological Laboratories) (76–78, City-road, E.C.) selected from the range of preparations a new sedative, Acetidine, containing acetphenetidin, aspirin, and caffeine; a human immune globulin for use in measles; Vacagen respiratory mixed vaccine for oral administration; and a sterile solution of the venom of the Water Moccasin for intramuscular injection in cases of tendency to bleeding.—(50) E. R. SQUIBB AND SONS (New York) (Distributors, Savory and Moore Ltd., 61, Welbeck-street, W.1) presented Calfo-Rayol (Squibb), "a readily absorbed and suitably balanced source of calcium and phosphorus, with sufficient vitamin D to assure their adequate utilisation," designed to help supply the greatly increased calcium requirements of pregnancy and lactation; it is issued in wintergreen-flavoured tablets and gelatin capsules. They also showed their Quinolor germicidal and protective ointment, especially used in barbers' itch.—(155) WILLIAM R. WARNER AND CO., LTD. (Power-road, Chiswick) showed their well-known Veganin sedative, analgesic and antipyretic; Anusol, now available as ointment; Veracolate, a compound of bile salts with laxatives; and Alka-Zane, an effervescent systemic alkaliser which has been used in the nausea and vomiting of pregnancy.

INSTITUTE OF PSYCHO-ANALYSIS.—A course of lectures on clinical psycho-analysis will be held at this institute, 96, Gloucester-place, London, W., on Tuesdays at 8.30 P.M., from Nov. 22nd to Jan. 31st. Further information may be found in our advertisement columns.

OBITUARY

HAROLD DICKINSON SENIOR, M.D. Durh., D.Sc., F.R.C.S.

Prof. Senior held the chair of anatomy at the University of New York from 1910 to 1936 and was for many years an associate editor of the *American Journal of Anatomy*.

Born at Croydon in 1870 he was educated at Chatham House College, Ramsgate, and at Charing Cross Hospital, whence he qualified in 1892. Having held the posts of house physician, house surgeon, and medical registrar at Charing Cross, he became assistant demonstrator of anatomy at Durham, where he later graduated. Returning to the anatomy department of his old hospital he took his F.R.C.S. in 1895 and then began the practice of surgery in Canada. He married, in 1901, Jean Hedley of Halifax, Nova Scotia. In 1902 he was back in anatomy, with an appointment at the Medico-Chirurgical College at Philadelphia. In 1907, after several years at the Wistar Institute, he was given the chair of anatomy at Syracuse University, and thence was called to New York. Here he represented, to his friends in this country, an island of British anatomy surrounded by American workers who had long since broken away from our dissecting-room outlook.

"For nearly thirty years," writes an anatomical colleague, "Senior continued as a professor of anatomy, and during the whole of that time he followed the British tradition. The British tradition has meant meagre equipment, meagre staff, a vast amount of routine personal teaching, with odd moments for research if tiredness could be combated. The American tradition has created a more responsible student body who require little personal attention, abundant equipment and numerous staff, and the expectation that research will be the principal activity of a fresh unburdened mind. No doubt the department of anatomy in New York shared to a great extent in the plenitude that has come to all the American medical sciences, but Senior continued in the way he began, and throughout his long tenure of office he remained a great personal teacher. In consequence he was much beloved by students, and their regard often took the form of gracious and unexpected acts. This personal devotion to the daily cares of medical education has been greatly appreciated in his own school, and it may not be altogether presumptuous to suppose that the appointment of Englishmen recently to their chairs of anatomy and biochemistry is in some degree a tribute to Prof. Senior.

"Though Senior gave so much of his time and energy to students he nevertheless carried out very difficult and laborious researches upon the development of blood-vessels. It has long been an interesting problem as to whether the formative influences which determine the pattern of blood-vessels are largely the pressure and velocity of the blood within them, or if immediate and remote hereditary and ancestral factors are the more important. There can be no doubt of the importance of the second group of factors. Senior reconstructed the vascular pattern of the extremities at different embryonic ages. He was able to show that the main arteries are being reconstituted again and again by the loss of certain connexions and the capture of others. These changes can only be made intelligible by an appeal to genetic factors. These interesting researches brought much satisfaction to Senior and his friends. Recognition took the form of inviting him to assume responsibility for the section in Morris's Anatomy dealing with the vascular system and election to the vice-presidency of the American Anatomical Association."

JOSEPH POWER, M.B. Dubl.

Dr. Power, for many years chairman of the Irish Medical Committee, died at his home, Cappagh, Co. Waterford, on Sept. 25th. He had retired from practice some five years ago. Educated at Trinity College, Dublin, where he held a medical scholarship, he qualified in 1893 and after brief periods of practice in Co. Waterford and in East London he was appointed medical officer to the Ardfinnan district, where he continued to practise until his retirement. He threw himself actively into the movement for the improvement of the Irish dispensary service, and when in 1912 it was found necessary to form a special representative committee to protect medical interests in problems arising from National Health Insurance he became one of its most active members. He took a large part in establishing the present system of medical certification of insured persons, which obtained substantial, if not adequate, remuneration without surrender of professional privileges. In 1922 he was elected chairman of the Irish Medical Committee, which for several years represented the entire profession of Ireland in public medical affairs, and he held this post until the establishment of the Irish Free State Medical Council three years ago. He was a capable chairman, clear, firm, incisive, and a forceful and persuasive advocate, although the "fortiter" was sometimes more obvious than the "suaviter." He had high ideas of the responsibility and dignity of the medical profession and carried them out rigorously both in his own work and in public affairs.

Dr. ERNEST BONNEY, who died on Sept. 28th in his 66th year, was the third son of Dr. W. A. Bonney of Chelsea, and a brother of Mr. Victor Bonney. Qualifying from Charing Cross Hospital in 1900, after a brilliant career as a student, he held house appointment there and at the Victoria Hospital for Children, and was then for some years resident medical officer at the Kensington Children's Hospital. The intimate knowledge of children's diseases thus acquired stood him in good stead when he retired to take up general practice in the neighbourhood. He was extremely conscientious in his work, never sparing himself in his efforts to do the best for his patients; indeed, he may be said to have worn himself out in their service. He was a man of varied activities and knowledge, well read especially in history, art, and music; he was a good singer, a gift which he inherited from his father. He leaves a widow with a daughter and a son who is studying medicine at St. Mary's.

Dr. ALBERT RICHARD HENCHLEY, who died in London, was associated all his life with campaigning. He raised, trained, and commanded a unit of R.A.M.C. volunteers at Canterbury. He was attached as surgeon to the R.A.M.C. during the South African War. He was in Ireland during the 1916 episode and was later in command of the 59th and 48th C.C.S.'s, and he commanded the Princess Patricia Hospital at Bray. Born in 1871, eldest son of S. R. Henchley of Ashbourne, Derbyshire, he qualified from the Middlesex Hospital and held house appointments at Nottingham and Woolwich before starting in practice at Blagdon, Glos, whence he soon moved to Canterbury. He took the M.D. Brux. with honours in 1903, and kept in touch with his fellow graduates.

MEDICAL NEWS

University of Cambridge

On Oct. 15th the following degrees were conferred :—

M.D.—*C. G. Parsons and *H. Smith.
M.B., B.Chir.—*K. W. Donald, T. A. W. Edwards, E. A. Evans, J. S. Heller, J. P. Henry, *C. W. Hutt, G. M. Little, A. G. Marshall, and W. E. D. Moore.
M.B.—J. A. Falk.
B.Chir.—C. H. M. Gimlette.
* By proxy.

Royal College of Surgeons of England

At a meeting of the council of the college held on Oct. 13th with Mr. Hugh Lett, the president, in the chair, Mr. Frank Batley was admitted as a Macloghlin scholar. Sir Alfred Webb-Johnson stated that he had been asked by an anonymous donor to offer the college a gift of five hundred guineas for the completion of some special work, and the council accepted this gift.

The council stated that they were prepared to hold a primary examination for the fellowship in Australasia every three years, the next examination to be in February, 1941. It was reported that the office and secretariat of the Imperial Cancer Research Fund were now established at the college.

Counsel's opinion stating that the existing charters do not give the college power to grant a higher diploma in dental surgery was before the council.

A diploma of fellowship was granted to Robert Officer (Melbourne and Guy's); and diplomas of membership to Phoebe Charlton (Royal Free), Abraham Caplin (University College), and Hugh Stott (Cambridge and Guy's). Diplomas in child health were granted jointly with the Royal College of Physicians to the following candidates :—

K. B. Ahmed, A. M. Clarke, J. H. Colebatch, S. D. M. Court, A. G. Denison, M. L. Edwards, Irene K. Falk, Mima M. Gemmell, S. M. Ghosal, K. N. Gour, Alice M. Headwards, R. S. Illingworth, F. D. M. Livingstone, Stephen Mackenzie, N. S. Mair, Queenie I. E. May, A. B. Milligan, Anasuya Mundle, Margaret I. Neal, M. N. Pai, Helen J. L. Robertson, A. T. Roden, A. V. S. Sarma, S. S. Sawaf, Mohammad Seraj-ul-Haque, Florence Stephen, Shirley M. Taylor, Achamma Thomas, Mary A. Thomas, Manu Trivedi, Frank Walt, C. B. M. Warren, R. G. Wilbond, and Elsa P. Woodrow.

The position of house surgeon at the District and General Hospital, Harrogate, was recognised for the six months' surgical practice required of candidates for the final examination for the fellowship.

University of Sheffield

At recent examinations the following candidates were successful :—

FINAL EXAMINATION FOR THE M.B., CH.B.

Parts II and III.—John Beech, E. G. Crookes, N. W. Jones, J. S. Lindsay, and W. J. Wilson.

University of Manchester

Dr. J. C. Brundret has been appointed assistant lecturer in bacteriology and Dr. S. G. Abelson, chief medical assistant in the department of clinical investigations and research.

At recent examinations the following candidates were successful :—

D.P.H.

J. S. Parkinson, Helen E. Smith, and R. C. Webster.

University of Edinburgh

Prof. G. F. Marrian has been appointed to the chair of chemistry in relation to medicine, in succession to Prof. George Barger, F.R.S., who now holds the chair of chemistry at Glasgow University.

Dr. Marrian obtained his B.Sc. degree in chemistry at University College, London, in 1925, and two years later the M.Sc. in physiology. In the same year he was awarded a Beit fellowship and appointed hon. assistant in the department of physiology and biochemistry at University College. In 1930 he became lecturer in the same department, and obtained the degree of D.Sc. In 1932 he was awarded the Meldola medal of the Institute of Chemistry of Great Britain and Ireland. In 1933 he received a William Julius Mickle fellowship from the University of London and went to Toronto as assistant professor of biochemistry. Three years later he was made a full professor in the department of Prof. H. Wasteneys. Dr. Marrian was first responsible for isolating the substance now known as œstriol and in a communication with other Toronto workers to our columns (*Lancet*, 1935, **1**, 674) he pointed out the importance of the free and combined forms of œstriol in human pregnancy. He later identified the combined form as œstriol glucuronide.

University of Glasgow

On Oct. 15th the following degrees were conferred :—

M.D.—J. I. Russell (with high commendation); Charles Glen and Ian MacKay (with commendation).
M.B., Ch.B.—James Walker (with honours); N. G. B. McLetchie, Albert Brown, Elizabeth B. S. Scobbie, Thomas Gibson, Janet R. Mowat, R. T. S. Gunn, and Alexander, Macfarlane (with commendation); W. C. Alford, H. M. Archibald, G. W. Armour, William Auld, William Bain, Margaret R. Barr, G. D. S. Beechey, A. M. Brannan, James Brown, Margaret A. F. Burton, D. C. Caldwell, Charles Cameron, David Christison, J. Y. Clark, Marion A. Crawford, R. C. Cunningham, Margaret M. B. Curley, Ellen Cush, I. M. Davidson, J. S. Dawson, E. C. Easson, Jay Fairweather, William Ferguson, J. D. Frame, J. R. Gallie, James Garden, J. L. Gilloran, John Glen, Maurice Goldin, Rankine Good, T. T. Graham, Abraham Granat, Helen W. Greenlees, G. A. Guthrie, A. J. Haddow, A. R. Harper, L. G. Harper, A. W. Harrington, Thomas Hart, F. J. Hebbert, I. V. Hopkins, Fahmy Iskander, A. S. Johnston, E. de C. Kite, LL.B. Lond., L.M.S.S.A., Mary M. Leitch, J. B. McCallum, I. M. McCully, Duncan Macdonald, Archibald McDougall, J. D. McFadyen, Jean M. McGill, A. W. McHaffie, Ian McIndewar, J. R. Macintyre, I. C. K. Mackenzie, Henry McKeown, W. M. McLennan, Julia M. Middleton, William Mullen, R. L. Orchardson, G. D. Park, Mary R. Paterson, David Paton, Robert Provan, A. J. G. Pullar, David Purdie, C. M. Ramage, Robert Rankin, Ian Rannie, A. G. Reid, James Reid, R. V. Rhoda, J. H. Rosengard, Margaret C. G. Russell, G. H. Scoular, Malcolm Shaw, D. R. Sloan, James Smith, John Smith, M.B. Camb., Louis Steingold, J. H. Stirrat, W. B. Summers, Anna J. Sutherland, J. A. Sutherland, A. M. Tait, R. D. Taylor, Barbara S. Thomson, K. R. Thornton, W. V. Wallace, Neil Watters, James Wishart, Shanna B. Wright, David Yellowlees, Archibald Young, and I. M. Young.

The Brunton prize was awarded to James Walker as the most distinguished graduate in medicine of the year.

University of Aberdeen

Dr. R. S. Aitken has been appointed to the regius chair of medicine in the university.

Dr. Aitken, who is 37 years of age, was born and educated in New Zealand. He qualified in 1922 from the University of Otago and subsequently held house appointments in the Dunedin Hospital and a demonstratorship in the department of anatomy. In 1924 he came to Balliol College, Oxford, with a Rhodes scholarship, and worked on renal secretion and related problems in the department of physiology. He obtained the D.Phil. Oxon. in 1927. In 1926 he joined the medical unit of the London Hospital as Owen Williams scholar and later became house physician and first assistant. During 1932–33 he spent six months visiting medical clinics in Germany. Since the opening of the British Postgraduate Medical School in 1935 he has been university reader in medicine at that school and assistant director of the department of medicine. In 1937 he was elected F.R.C.P., and this year he obtained his M.D. degree from the University of New Zealand. His recent publications include papers on hæmatemesis and on zinc protamine insulin, and articles on diseases of the liver in the British Encyclopædia of Medical Practice.

University of Wales

At recent examinations at the Welsh National School of Medicine for Part II of the D.P.H., R. M. Dykes and E. W. Kinsey were successful.

University of Hong-Kong

Dr. Gordon King, associate professor of obstetrics and gynæcology at Cheeloo University, has been appointed to the chair of obstetrics and gynæcology at Hong-Kong University. He has also been appointed consulting obstetrician and gynæcologist to the Government.

Epsom College

An examination will shortly be held for the admission of two or three boys to the College as council exhibitioners. Candidates must be sons of medical men who are over 12 and under 14 years of age on Jan. 1st. Further information may be had from the secretary of the college, 49, Bedford-square, London, W.C.1.

St. Bartholomew's Hospital

The annual dinner for old students of this hospital will be held in the college hall, Charterhouse-square, at 8 P.M. on Monday, Nov. 21st, when Mr. Harold Wilson will be in the chair. The Duke of Gloucester will be the guest of honour.

London Jewish Hospital Medical Society

Prof. Henry Cohen will deliver his presidential address to this society on the medical knowledge of William Shakespeare. The meeting will take place at the Anglo-Palestinian Club, 43, Great Windmill-street, W., on Sunday, Oct. 23rd, at 8.45 P.M.

Society for Relief of Widows and Orphans of Medical Men

At a quarterly court of directors held on Oct. 12th, Mr. V. Warren Low presiding, the half-yearly audited accounts were presented and approved, showing that £2210 had been distributed in grants among 61 widows and 5 orphans. It was decided this year to make a Christmas present of £5 to each widow and orphan in receipt of grants. A donation of £2 2*s*. from the South West London Post-graduate Association was reported.

Glasgow Post-graduate Medical Association

A series of post-graduate clinical demonstrations has been arranged by this association and will be held on Wednesdays at 4.15 P.M., from Nov. 2nd to March 29th. Courses on ophthalmology, obstetrics, radium therapy, and psychology will also take place during the winter months and a number of clinical assistantships are available at institutions taking part in the work of the association. Further information may be had from the secretary, Dr. James Carslaw, 9, Woodside-terrace, Glasgow, C.3.

Broadcasts

The second of a series of discussions for the younger listener under the title "On the Job" will be broadcast from the West Region on Monday, Oct. 24th, when Major J. A. Garton will lead the discussion on careers in a hospital. He will bring with him to the studio a doctor, a probationer nurse, and a hospital porter.

The discussions between a mother and a doctor on the welfare of mother and child will continue during November on Fridays at 10.45 A.M. On Nov. 4th listeners will hear a conversation on postnatal care between Mrs. Beatrice Dodds and a woman doctor. On Nov. 18th and 25th the subject will be breast-feeding. On Nov. 17th a medical psychologist will give the second of the series of talks on children ill and well.

Appointments

* ADDERLEY, C. H., M.B. Dubl., D.P.H., Assistant Pathologist in the Manchester Municipal Hospitals Pathological Service.
ANDREW, J. E., M.D., L.M.S.P.E.I., F.R.C.S.E., Resident Surgical Officer at the Kent and Sussex Hospital, Tunbridge Wells.
CLYNE, D. G. W., B.M. Oxon., Obstetrical Registrar at Charing Cross Hospital.
COLTART, W. S., M.B. Birm., Hon. Anæsthetist to the Royal West Sussex Hospital, Chichester.
DANINO, E. A., M.D. Lond., M.R.C.P., D.A., Resident Medical Officer at the Cardiff Royal Infirmary.
DAVID, ALAN, M.R.C.S., Resident Medical Officer at Glan Ely Hospital, Cardiff.
DAVIS, H. S., M.B. Camb., M.R.C.P., Medical Registrar at Charing Cross Hospital.
ELLIOTT, F. A., M.B. Cape Town, M.R.C.P., House Physician at the National Hospital, Queen-square, London.
EPPS, L. C. DE R., M.B. Camb., Hon. Anæsthetist to the Royal West Sussex Hospital, Chichester.
HAY, HILDA R., M.B. Edin., D.P.H., Assistant Medical Officer and Assistant School Medical Officer for Edmonton.
KITCHING, E. H., M.D. Leeds, M.R.C.P., D.P.M., Psychiatrist to the medical neurological department of Manchester Royal Infirmary.
MAB, J. G., M.D. Manitoba, Senior House Surgeon at the Royal Gwent Hospital, Newport, Mon.
MORRIS, H. M., M.D. Belf., D.M.R.E., Hon. Radiologist to the Royal Hospital, Salford.
POOL, ARTHUR, M.B. Liverp., M.R.C.P., D.P.M., Medical Superintendent at the Retreat, York, in succession to Dr. Neil Macleod, who becomes Consulting Physician to the hospital.
ROSS, H. J., M.B. Aberd., F.R.C.S., Medical Superintendent at the Dreadnought Hospital, Greenwich.
RUBENSTEIN, L. H., M.D., Assistant Medical Officer at the West Riding Mental Hospital, Wadsley.
SMEATON, W. G., M.B. St. And., Casualty Officer at the Royal Gwent Hospital, Newport, Mon.
TURNER, J. W. A., B.M. Oxon., M.R.C.P., Resident Medical Officer at the National Hospital, Queen-square, London.
WALKER, NORAH, M.B. Manch., D.M.R.E., Hon. Assistant Radiologist to the Royal Liverpool Children's Hospital.

London County Council.—The following promotions in the council's mental services are announced:—
WALK, ALEXANDER, M.D. Lond., D.P.M., Deputy Medical Superintendent at Horton Hospital;
DAIZELL, A. C., M.D. Lond., D.P.M., First Assistant Medical Officer at Banstead Hospital;
BERRINGTON, W. P., M.B. Belf., D.P.M., Second Assistant Medical Officer at West Park Hospital;
GOODLAD, J. F. R., M.B. Aberd., D.P.M., Second Assistant Medical Officer at The Manor;
GILCHRIST, W. S. L., M.B. Belf., D.P.M., Second Assistant Medical Officer at Banstead Hospital; and
STIRLING, PAULINE W. M. C., M.B. Edin., D.P.M., Second Assistant Medical Officer at Cane Hill Hospital.

* Subject to confirmation.

Vacancies

For further information refer to the advertisement columns

Aberdeen Royal Infirmary.—Res. Med. Reg., £200.
Altrincham General Hosp.—Hon. Surgeon.
Ashton-under-Lyne, Lake Hosp.—Res. Obstet. Officer, £350.
Birmingham, Canwell Hall Babies' Hosp.—Res. M.O., £250.
Bristol Royal Infirmary.—Hon. Asst. Anæsthetist.
Central London Throat, Nose, and Ear Hosp., Gray's Inn-road, W.C.—Third Res. H.S., at rate of £75.
Colchester, Essex County Hosp.—H.P., £150.
Coventry City.—Asst. M.O., £500.
Dewsbury County Borough.—Deputy M.O.H. and Deputy School M.O., £600.
Dorchester, Dorset County Hosp.—Matron, £160.
East Ham Memorial Hosp., Shrewsbury-road, E.—Anæsthetist, 1 guinea per session.
Elizabeth Garrett Anderson Hosp., Euston-road, N.W.—Clin. Asst. to Ophth. Dept., £50.
Essex County Council.—Jun. Asst. M.O., £250.
German Hosp., Dalston, E.—Hon. Ophth. Surgeon.
Guildford, Royal Surrey County Hosp.—H.P. and Cas. O., at rate of £150.
Hosp. for Consumption and Diseases of the Chest, Brompton, S.W.—Two Physicians.
Hosp. for Sick Children, Great Ormond-street, W.C.—Res. Aural Registrar, £150.
Hull Corporation Health Department.—Consultant Obstetrician, &c., £700. Also Asst. M.O.H., £600.
King Edward Memorial Hosp., Ealing, W.—Cons. Physician. Also Cons. Physician for Diseases of Children.
King's College Hosp., S.E.—Asst. Ophth. Surgeon.
Liverpool, Alder Hey Children's Hosp., West Derby.—Sen. Res. Asst. M.O., £350.
London County Council.—Asst. Pathologist, £650. Asst. M.O.'s, Grade I, each £350. Also Asst. M.O., Grade II, £250.
London Hosp., E.—Paterson Research Scholar and Chief Asst. to Cardiac Dept., £400. Also First Asst. and Reg. to Children's Dept. and Surg. First Asst. and Reg., each £300.
London Lock Hosp., 283, Harrow-road, W.—Res. M.O. to all Depts., at rate of £175. Also Surg. Reg., £100.
Manchester, Crumpsall Hosp.—Consultant Surgeon, £300.
Manchester, Duchess of York Hosp. for Babies.—Sen. Res. M.O., at rate of £125.
Manchester, Withington Hosp.—Three Res. Asst. M.O.'s, each £200.
Margate and District General Hosp.—Res. M.O., £150.
Metropolitan Hosp., Kingsland-road, E.—Cas. O. and Res. Anæsthetist, £100.
Middlesex County Council.—Additional Asst. M.O., £800. Dental Anæsthetists, each 1½ guineas per session. Also Res. Asst. M.O., £400.
Newcastle-on-Tyne Throat, Nose, and Ear Hosp.—H.S., £150.
Norwich, Norfolk and Norwich Hosp.—Cas. O., £120.
Nottingham General Dispensary, Broad-street.—Res. M.O., £300.
Nottingham General Hosp.—H.S. to Ear, Nose, and Throat Dept., at rate of £150.
Plaistow Fever Hosp.—Jun. Asst. M.O., £300.
Plymouth, Prince of Wales's Hosp.—Hon. Surgeon.
Preston, Whiston County Hosp., near Prescot.—Res. M.O., £400.
Preston County Borough—Asst. School M.O., £500.
Princess Louise Kensington Hosp. for Children, St. Quintin-avenue, W.—Physician in Charge of Child Guidance Clinic.
Queen Mary's Hosp. for the East End, E.—Hon. Asst. Physician to Dept. of Psychological Medicine.
Radium Institute and Mount Vernon Hosp., 1, *Riding House-street, W.*—H.S., at rate of £150.
Royal Eye Hosp., St. George's Circus, S.E.—Research Scholarship, £100. Also Refractionists and Clin. Assts.
Royal Free Hosp., Gray's Inn-road, W.C.—Hon. Asst. Radiologist. Also Asst. Physician.
Royal Naval Medical Service.—M.O.'s.
Royal Northern Hosp., Holloway, N.—Hon. Biologist. Second Physician for Diseases of the Skin. Also Clin. Asst. in Ear, Nose, and Throat Dept.
Samaritan Free Hosp. for Women, Marylebone-road, N.W.—H.S., at rate of £100.
Southampton Free Eye Hosp.—H.S., at rate of £150.
Stafford, Staffordshire General Infirmary.—H.P., £150.
Swansea County Borough.—Asst. M.O., £500.
Swansea County Borough Mental Hosp.—Deputy Med. Supt., £525.
Tilbury Hosp., Essex.—Med. Supt., £200.
Tottenham Borough Welfare Authority.—Visiting Anæsthetist, 2½ guineas per session.
Tunbridge Wells, Kent and Sussex Hosp.—H.S. to Ear, Nose, and Throat and Ophth. Depts., and Res. Anæsthetist, £150.
West Lothian, Bangour Mental Hosp., Broxburn.—Res. Jun. Asst. M.O., £300.
West Riding of Yorkshire County Council.—Ass. Tuber O., £500.
Westminster Hosp., Broad Sanctuary, S.W.—Clin. Asst. and Refractionist, £50.
Willesden General Hosp., Harlesden-road, N.W.—Asst. Surg. O., £50.
Worthing Hosp.—Surgeon.

The Chief Inspector of Factories announces a vacancy for an Examining Factory Surgeon at Melton Mowbray (Leicester).

Medical Diary

Oct. 24th to Oct. 30th

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1 Wimpole-street, W.

MONDAY.

Odontology. 8 P.M., Mr. A. H. Parrott: Jaw and Facial Injuries in War Time. (Presidential address.) Mr. P. Pincus, D.D.Sc.: Enamel Protein.

TUESDAY.

Medicine, Therapeutics and Pharmacology. 8.30 P.M., Dr. E. Guttmann, Dr. Ivor Davies, and Dr. J. W. Trevan: Benzedrine—Uses and Abuses.

WEDNESDAY.

Comparative Medicine. 5 P.M., Prof. T. Dalling: Disease Problems Concerning Domesticated Animals. (Presidential address.)

THURSDAY.

Urology. 8.30 P.M., Mr. H. P. Winsbury-White: Some Interesting Features Concerning 455 Personal Cases of Urinary Calculus. (Presidential address.)

FRIDAY.

Disease in Children. 5 P.M. (Cases at 4.15 P.M.), Dr. Bonham Carter (for Dr. E. A. Cockayne): (1–2) Dermatomyositis. Dr. R. S. Illingworth: (3) Case for diagnosis. Dr. R. H. Dobbs: (4) Achalasia. Dr. S. Falla: (5) Case for diagnosis.

Epidemiology and State Medicine. 8.15 P.M., Dr. J. A. H. Erincker: Convalescent Hospitals of the Future—their Type, Function, and Use. (Presidential address.)

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, W.

MONDAY.—8.30 P.M., Sir William Willcox, Prof. Alexander Fleming, Mr. Eardley Holland, and Dr. G. L. M. McElligott: Sulphanilamide—Its Use and Its Misuse.

MEDICO-LEGAL SOCIETY.

THURSDAY.—8.30 P.M. (Manson House, 26, Portland-place, W.) Sir Bernard Spilsbury: The Medico-Legal Significance of Wounds.

ST. JOHN'S HOSPITAL DERMATOLOGICAL SOCIETY, Lisle-street, W.C.

WEDNESDAY.—4.30 P.M., clinical cases.

ASSOCIATION OF INDUSTRIAL MEDICAL OFFICERS.

FRIDAY.—5 P.M. (London School of Hygiene and Tropical Medicine, Keppel-street, W.C.), business meeting. 6 P.M., Prof. E. P. Cathcart, F.R.S.: The Feet of the Industrial Worker. Mr. C. Lambrinudi: The Action of the Muscles of the Foot (film). Mr. W. S. Creer, Dr. W. Blood, and Mr. Eric Gill will also speak.

BRITISH PSYCHOLOGICAL SOCIETY.

Medical Section.

WEDNESDAY.—8.30 P.M. (B.M.A. House, Tavistock-square, W.C.), Dr. D. W. Winnicott: Appetite in Psychological Disorder.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn-fields, W.C.

MONDAY.—5 P.M., Dr. L. W. Proger: demonstration of pathological specimens.

FRIDAY.—5 P.M., Dr. A. J. E. Cave: the Anatomy of the Female Reproductive Organs.

CHADWICK PUBLIC LECTURE.

THURSDAY.—5.30 P.M. (Royal Sanitary Institute, 90, Buckingham Palace-road, S.W.), Dr. Norman Macfadyen: The Evils of The Congestion of Population and the Way Out.

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane-road, W.

TUESDAY.—4.30 P.M., Dr. C. W. Buckley: Arthritis.

WEDNESDAY.—Noon, clinical and pathological conference (medical). 3 P.M., clinical and pathological conference (surgical). 4.30 P.M., Mr. F. G. Young, Ph.D.: Carbohydrate Metabolism.

THURSDAY.—2.15 P.M., Dr. Duncan White: radiological conference.

FRIDAY.—2 P.M., clinical and pathological conference (obstetrics and gynæcology). 2.30 P.M., Mr. G. C. Knight: Surgery of the Sympathetic System. 3.30 P.M., Dr. H. C. Moloy: Variations in the Female Pelvis and their Obstetric Significance.

Daily 10 A.M. to 4 P.M., medical clinics, surgical clinics and operations, obstetrical and gynæcological clinics and operations.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

MONDAY to SATURDAY.—Clinical course for part II of the D.L.O. examination.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL, N.W.

WEDNESDAY.—4 P.M., Mr. A. J. Gardham: Difficult Diagnosis of Tumours of the Breast.

NATIONAL HOSPITAL, Queen-square, W.C.

MONDAY.—3.30 P.M., Dr. Macdonald Critchley: Aphasia.

TUESDAY.—3.30 P.M., Dr. Purdon Martin: The Cranial Nerves.

WEDNESDAY.—3.30 P.M., Dr. F. M. R. Walshe: clinical demonstration.

THURSDAY.—3.30 P.M., Dr. Gordon Holmes, F.R.S.: The Visual System.

FRIDAY.—3.30 P.M., Dr. Bernard Hart: The Psychoneuroses. Out-patient clinic daily at 2 P.M.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY.—2 P.M., Dr. Wilfrid Sheldon: Disturbances of Lipoid Metabolism in Children. 3 P.M., Mr. James Crooks: Intracranial Complications of Ear Disease.

Out-patient clinics daily at 10 A.M. and ward visits at 2 P.M.

MAIDA VALE HOSPITAL FOR NERVOUS DISEASES, W.

THURSDAY.—3 P.M., Dr. Douglas McAlpine: clinical demonstration.

LONDON SCHOOL OF DERMATOLOGY, 5, Lisle-street, W.C.

TUESDAY.—5 P.M., Dr. G. Duckworth: Virus Diseases of the Skin.

THURSDAY.—5 P.M., Dr. W. J. O'Donovan: Dermatological Neuroses. (Chesterfield lectures.)

ST. JOHN CLINIC AND INSTITUTE OF PHYSICAL MEDICINE, Ranelagh-road, S.W.

FRIDAY.—3.30 P.M., Prof. F. R. Fraser: A General Survey of the Rheumatic Problem.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY to SUNDAY.—BROMPTON HOSPITAL, S.W., all-day course in chest diseases.—ST. PETER'S HOSPITAL, Henrietta-street, W.C., all-day course in urology. (Open only to men.)—ST. JOHN'S HOSPITAL, 5, Lisle-street, W.C., afternoon course in dermatology. (Open to non-members.)—ST. JOHN CLINIC AND INSTITUTE OF PHYSICAL MEDICINE, Ranelagh-road, S.W., Sat. and Sun., course in physical medicine. Courses are open only to members.

UNIVERSITY OF SHEFFIELD.

FRIDAY.—3 P.M. (Royal Infirmary), Mr. T. B. Mouat: surgical demonstration. 3 P.M. (Royal Hospital), Mr. H. B. Yates: surgical demonstration.

LEEDS GENERAL INFIRMARY.

TUESDAY.—3.30 P.M., Prof. William MacAdam: Some Abdominal Conditions of Special Interest.

LEEDS PUBLIC DISPENSARY AND HOSPITAL.

WEDNESDAY.—4 P.M., Dr. H. G. Garland: demonstration of neurological cases.

MANCHESTER ROYAL INFIRMARY.

FRIDAY.—4.15 P.M., Dr. Crighton Bramwell: cardiac cases.

EDINBURGH ROYAL INFIRMARY.

THURSDAY.—5 P.M., Dr. W. Ritchie Russell: Neurology—Some Modern Problems. (Honyman Gillespie lecture.)

Births, Marriages, and Deaths

BIRTHS

BICKERTON.—On Oct. 15th, at Devonshire-place, W., the wife of Squadron Leader Myles Bickerton, F.R.C.S.—a daughter.

FISHER.—On Oct. 6th, at Skipton, the wife of Dr. A. Fisher—a daughter.

HILL.—On Oct. 10th, at St. Albans, the wife of Dr. Charles Hill—a son.

LLOYD.—On Oct. 15th, at Welbeck-street, W., the wife of Dr. N. Langdon Lloyd—a son.

MAYNARD.—On Oct. 15th, the wife of Dr. E. F. Maynard, of Maresfield, Sussex—a son.

NORMAN.—On Oct. 9th, the wife of Dr. R. A. Norman, of Fakenham—a son.

MARRIAGES

BAIN—FALLA.—On Oct. 12th, at St. Andrew's Presbyterian Church, Guernsey, William Ivor Bain, M.B. Camb., to Kathleen Alice Falla.

CHATAWAY—LIND.—On Oct. 8th, at Nairobi, Kenya, Harold Chataway, F.R.C.S., Colonial Medical Service, to Patricia Lind.

GRAINGER—REES.—On Oct. 11th, at St. Mary's Church, Haverfordwest, Robert Grainger, F.R.C.S., to Sarah Margaret Elizabeth Rees.

HAYNES—PARKER.—On Oct. 1st, at the Afghan Memorial Church, Colaba, Capt. William Noel Lankester Haynes, R.A.M.C., to Joan Parker.

STEVENSON—HILDER.—On Oct. 14th, at Emmanuel Church, London, Surg. Lt.-Comdr. Alec K. Stevenson, R.N., to Evelyn Hilder.

DEATHS

BIRD.—On Oct. 17th, at Egham, John Wilfred Bird, D.S.O., M.R.C.S.

BROWN.—Suddenly, at Macassa-Celebes, on Oct. 15th, Douglas Graham Brown, M.B., B.S., of Leigh-on-Sea, aged 25.

BROWN.—On Oct. 10th, at Eastbourne, William Welch Brown, M.B. Edin., of Alfriston, Sussex, aged 45.

CLARKE.—On Oct. 15th, at St. Anthony's Hospital, Cheam, Edward Revely Clarke, M.B. Camb.

FINLAY.—On Oct. 13th, at Bridgend, David Finlay, M.D. Glasg., aged 75.

GRABHAM.—On Oct. 14th, at Bournemouth, Henry Leatham Grabham, M.B. Lond., late of Tunbridge Wells, aged 57.

HENCHLEY.—On Oct. 6th, at Middlesex Hospital, W., Lt.-Col. A. R. Henchley, D.S.O., M.D.Brux., L.R.C.P.E., R.A.M.C. (T).

MILLER.—On Oct. 16th, at Hastings, Herbert Percy Miller, M.D. Brux., M.R.C.S., late of Stoke Newington.

SHARPLEY.—On Oct. 15th, Edward Sharpley, M.D. Durh., M.R.C.S., J.P., of Louth, Lincolnshire.

WALSH.—On Oct. 14th, at sea, Vincent Gregory Walsh, B.Sc., M.B. N.U.I., of London and Sydney.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

NOTES, COMMENTS, AND ABSTRACTS

THE FREQUENCY OF SURGICAL PROCEDURES

IN an inquiry made by the Committee on the Costs of Medical Care and the United States public health service nearly 9000 families comprising 39,185 persons were kept under observation for twelve consecutive months in 1928–31, and a detailed record of their illnesses and resort to medical assistance was obtained. The sample is believed to give a reasonable representation of the general population of the United States. Certainly there seems to be no end to the information which Selwyn D. Collins, principal statistician, of the service, is able to extract from it with regard to its history of disease in the year's survey. Causes of illness and death, frequency of health examinations, incidence of eye refractions, resort to vaccination, and methods of immunisation against different diseases have all been grist to his mill. Now he turns his attention to surgical procedures (*Publ. Hlth Rep., Wash.* Sept. 9th, 1938, p. 1593) and finds that of the cases of illness reported in the year 7·6 per cent., or roughly 1 in 13, led to surgical treatment. Of those that came under the care of a doctor the figure was naturally rather high—namely, 10 per cent.—and of those who were hospitalised it reached 60 per cent. The actual incidence of surgical cases by age on the population observed shows its peak at 5–9 years, with another high point for women at 25–34; but once illness has occurred there is little change between ages 5–35 in the proportion for which surgical treatment is regarded as necessary. Rather lower percentages, however, prevail at younger and older ages. The diagnoses that were most often treated surgically were non-venereal diseases of the male genital organs (with circumcision as the usual operation), 84 per cent.; mastoid diseases, 77 per cent.; cysts and tumours of the female genital organs, 72 per cent.; other benign tumours, 63 per cent.; appendicitis, 58 per cent.; and salpingitis, 53 per cent. Some of the relatively low figures were boils and styes, 11 per cent.; sinusitis, 9 per cent.; and ulcer of stomach or duodenum only 4 per cent.

The percentage of cases treated surgically increases, as one might expect, as family income increases; for instance, the proportion of appendicitis cases operated upon varies from 52 per cent. in families with annual incomes under $1200 to 75 per cent. with those in possession of $5000 or more, while the proportion for otitis media and mastoid changes from 16 to 28 per cent. It would be interesting to know the relative results by income class. There is also more hope (or risk, depending on one's outlook) of having surgical treatment in cities than in rural areas.

THE DANGEROUS DRUGS TRADE

THE Home Office report to the League of Nations on the traffic in opium and other dangerous drugs for 1937 follows the usual lines. Though new regulations were issued during the year under the Dangerous Drugs Acts there was no change in the law. No difficulties were encountered in carrying out the international conventions and the system of import and export certificates is now fairly well stabilised. The drugs branch of the Home Office continues to exchange information in regard to illicit traffic with Canada, Egypt, the United States, Holland, France, and other countries, but there is no evidence of any organised illicit traffic in this country. It is perhaps well that the opium poppy, the coca plant, and Indian hemp are not cultivated here. The licensed manufacture of morphine, heroin, codeine and Dionin is restricted to two firms and that of cocaine to one. The possession and use of dangerous drugs are restricted to duly qualified medical practitioners, registered dentists, and veterinary surgeons, pharmacists (including those engaged in dispensing medicines at public hospitals), and persons in charge of laboratories used for research or instruction and attached to institutions approved by the Secretary of State. Inspection of retail pharmacists is carried out by the police. Doctors' records are subject to inspection by regional medical officers, and all licensed and authorised persons are supervised by inspectors appointed by the Secretary of State. Conviction for irregularities may result in deprivation of authority to possess, supply, or prescribe drugs. This power was exercised in ten cases last year, eight being medical practitioners and two pharmacists. The possession and use of prepared opium for smoking, which is still an article of commerce in the Far East, is totally prohibited in this country, and when found it is seized and destroyed. In 1937 211,969 lbs. of raw opium was imported, mostly of Turkish origin, and 200,893 lbs. was exported, the bulk of it to the United States. During the year 11,558 ounces of British made morphine and 2162 ounces of heroin were exported, chiefly to Canada, Australia, South Africa, and India. The report and statistics are admirably compiled and it is regrettable that those of all other governments which are bound by the several conventions are not equally satisfactory.

ANOTHER ELECTRIC HEATING PAD

AS a source of dry heat, constant in action but controllable in degree, L. G. Hawkins and Co., Ltd. (30, Drury-lane, London, W.C.2), recommend the "Universal" Electric Heating Pad. By operating the simple regulating switch three different temperatures, it is stated, can be maintained—namely, 185° F., 150° F., and 115° F. Two thermostatic cut-outs are embodied in the pad to ensure that the desired heat is automatically maintained, so that it is impossible for the apparatus to become too hot. Nevertheless it is advised that the pad should not be applied to a helpless person unless carefully attended, and as with other electrical apparatus certain elementary precautions should be observed. A waterproof envelope is provided to keep the pad quite dry, and a muslin cover. The pad itself is covered in double-nap blanket cloth. The position of the lever controlling the amount of heat can be determined by raised projections on the switch, and can therefore be changed in the dark.

THE PIGMENT OF RED HAIR

THE pigment responsible for the distinctive colour of red human hair has been the subject of speculation not, according to L. E. Arnow,[1] supported by evidence. The suggestion that red hair is a diluted black takes no account of the many shades of brown which human hair exhibits, and the theory that the presence of lipochrome with melanin accounts for the colour of red hair is inconsistent with the fact that the only lipochrome hitherto discovered in horse-hair was yellow-green in colour and was present in hair of all shades except white.

Arnow himself working in Minnesota found that red human hair which had been thoroughly washed yielded when extracted for some days with boiling N/10 hydrochloric acid a reddish colour. He compared this pigment with one obtained by bubbling air through an alkaline solution of dopa-melanin, which he has good reason to regard as an oxidation product. Both the natural pigment and that produced by oxidation of melanin are soluble in acid, alkaline, and neutral solutions; melanin itself is insoluble in acid solutions. Both red pigments exhibit more colour in alkaline than in acid solutions, but their visible absorption spectra for both acid and alkaline solutions are similar. The spectral curves for both natural and synthetic pigment are widely different from those for dopa-melanin and black horse-hair pigment which are qualitatively similar to each other.

If, as Arnow believes, the pigment of red hair is an oxidation product of that of black hair it seems

[1] *Biochem. J.* August, 1938, p. 1281.

that throughout life, at least until the greying period, there must be some fundamental difference in the hair-producing mechanism of the two groups of persons. The question arises whether the reddening of the hair of the face which sometimes precedes greyness in men is due to oxidation or to a different pigment.

PAPWORTH INDUSTRIES

THE latest catalogue of hospital furniture sent us by Papworth Industries indicates how much has been achieved in the 21 years the enterprise has been in existence. On the Papworth scheme the tuberculous patients under treatment at the village settlement near Cambridge are trained in various trades and ex-patients are employed in work that will not endanger their health. Modern industrial machinery can do much to compensate for disabilities, and on this principle the Papworth factories are mechanised to the maximum. Although 11 separate industries are carried on altogether, most of the workers are employed in printing and book-binding, carpentry and cabinet making, or the manufacture of leather and fibre luggage, and the like. The standard of workmanship is high and steadily rising, for physically sub-standard craftsmen often develop a compensatory abnormal keenness, and the sales of Papworth products show a corresponding upward trend.

SEX INSTRUCTION FOR CHILDREN AND ADOLESCENTS

Two booklets by Dr. Enid Smith are useful additions to the Plaintalk Series published by the Alliance of Honour (112, City-road, London, E.C.) for 1*d*. each. One, called Life's Beginnings, is intended for children just arriving at the age of puberty, another, The Way of Freedom, for older girls. Both are simple and straightforward; the biological and medical details are correct and are explained without sentimentality. The difficult problem of the free mixing of the sexes during adolescence is boldly tackled and a sound code of behaviour for the adolescent girl in her relation to her boy-friends is outlined.

NAPOLEON AS PATIENT

SECOND-HAND diagnosis, attempted after a lapse of time and without the aid of precise data, may be fascinating and suggestive, but hardly carries conviction. The same may be said of speculations about the influence of disease upon the character or behaviour of this or that outstanding historical figure. Dr. Sokoloff has been at pains to collect and sift the medical evidence available and has written an entertaining book[1] about Napoleon who, it seems, was always something of an invalid. He is said to have suffered from nervous indigestion, chronic cystitis, pulmonary tuberculosis, hæmorrhoids, and, possibly, epilepsy, and later, at St. Helena, from vitamin deficiency and amœbic hepatitis. Like his father and grandfather, he died of carcinoma of the stomach. Nevertheless, during the first forty years of his life he was virile and aggressive to a degree and so energetic that, after working for fifteen hours on end, he would sleep no more than three. After forty, he changed, to become obese, apathetic, and sleepy, and no longer capable of quick and brilliant decision. In seeking the cause of this physical and mental deterioration, Dr. Sokoloff arraigns the pituitary. The young Napoleon was, he suggests, a hyper-pituitary subject and with the decline of that gland, Napoleon also declined. Writing with great sympathy for his subject, the author denounces the doctors at Longwood as ignorant meddlers whose drastic and stupid treatment served only to increase the misery of their patient. Dr. Sokoloff pleads his cause well, but many will remain unconvinced.

[1] Napoleon: A Medical Approach. By Boris Sokoloff, M.D. London: Selwyn and Blount. 1938. Pp. 279. 10*s*. 6*d*.

TREATMENT OF DIAPHRAGMATIC HERNIA

CONGENITAL diaphragmatic herniæ are fortunately rare, for their treatment is often a matter of grave difficulty. If a hernia is symptomless and merely discovered in the course of a routine examination, the question arises whether it should be operated on at all. Edward J. Donovan[1] says that it should. He points out that whenever the large or small gut is in the thorax there is a liability to intestinal obstruction. Unfortunately he does not say how the deficiency in the diaphragm should be made good. It is not always easy to repair a large defect in the diaphragm, and Donovan does not appear to have entirely solved the problem, seeing that in two of the patients he operated on the hernia recurred. Though the risk of obstruction must be conceded, it has been known for a hernia to remain undiagnosed for over 50 years and only to be found then in the course of an abdominal operation for another lesion. When the hernia is producing symptoms the need for operation is more pressing, and, if intestinal obstruction is present, it must of course be dealt with immediately. Donovan is a keen advocate of the abdominal approach, and he even sutured a left-sided perforation of the diaphragm near the œsophagus through a right subcostal incision. Why he should have done this he has not made clear, and it would be interesting to know what advantages he derived from this contortional feat. One would have thought that a left-sided thoracic or a combined thoracic and abdominal incision would have given much better access. He rightly stresses the advantages of positive pressure anæsthesia in these cases and gives the prominence it deserves to the great help that may be obtained from an oxygen tent during the immediate post-operative period.

NEW PREPARATIONS

HESPERIDIN (VITAMIN P) TABLETS G.L.—In our issue of Sept. 10th (p. 610) H. Scarborough and C. P. Stewart reported that hesperidin, given by mouth, reduces the number of petechial hæmorrhages (spontaneous or induced by pressure) in patients with vitamin deficiency. They used hesperidin supplied by Glaxo Laboratories Ltd. (Greenford, Middlesex) and this firm has now decided to make its product generally available. Hesperidin (vitamin P) Tablets G.L. are stated each to contain the equivalent of 0·25 gramme of hesperidin. It has been claimed that "vitamin P" may be curative in Henoch's purpura when vitamin C is ineffective (T. Jersild, *Lancet*, 1938, **1**, 1445).

A booklet on The Use of the B.D.H. Gonadotropic Hormones in the Male is circulated by the BRITISH DRUG HOUSES LTD. (Graham-street, London, N.1). These hormones are Serogan, obtained from the blood-serum of pregnant mares, and Gonan, obtained from pregnancy urine. Their application to cases of impotence, sterility, and undescended testis is described.

We have received a price list in which PHARMACEUTICAL SPECIALITIES (MAY AND BAKER) LTD., of Dagenham, London, conveniently set out the names, indications, dosage, and packing of their preparations.

[1] *Ann. Surg.* September, 1938, p. 374.

JOINT TUBERCULOSIS COUNCIL.—Two post-graduate courses are to be held under the auspices of this council during November. The first is at Heatherwood Hospital from Nov. 7th to 12th; the second at Brompton Hospital from Nov. 14th to 19th. Further details may be obtained from these hospitals, or from Dr. F. R. G. Heaf (hon. acting secretary, post-graduate courses), County Hall, London, S.E.1.